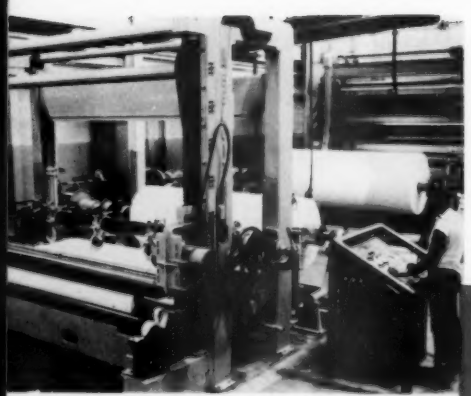
December 11, 1961

PULP & PAPER



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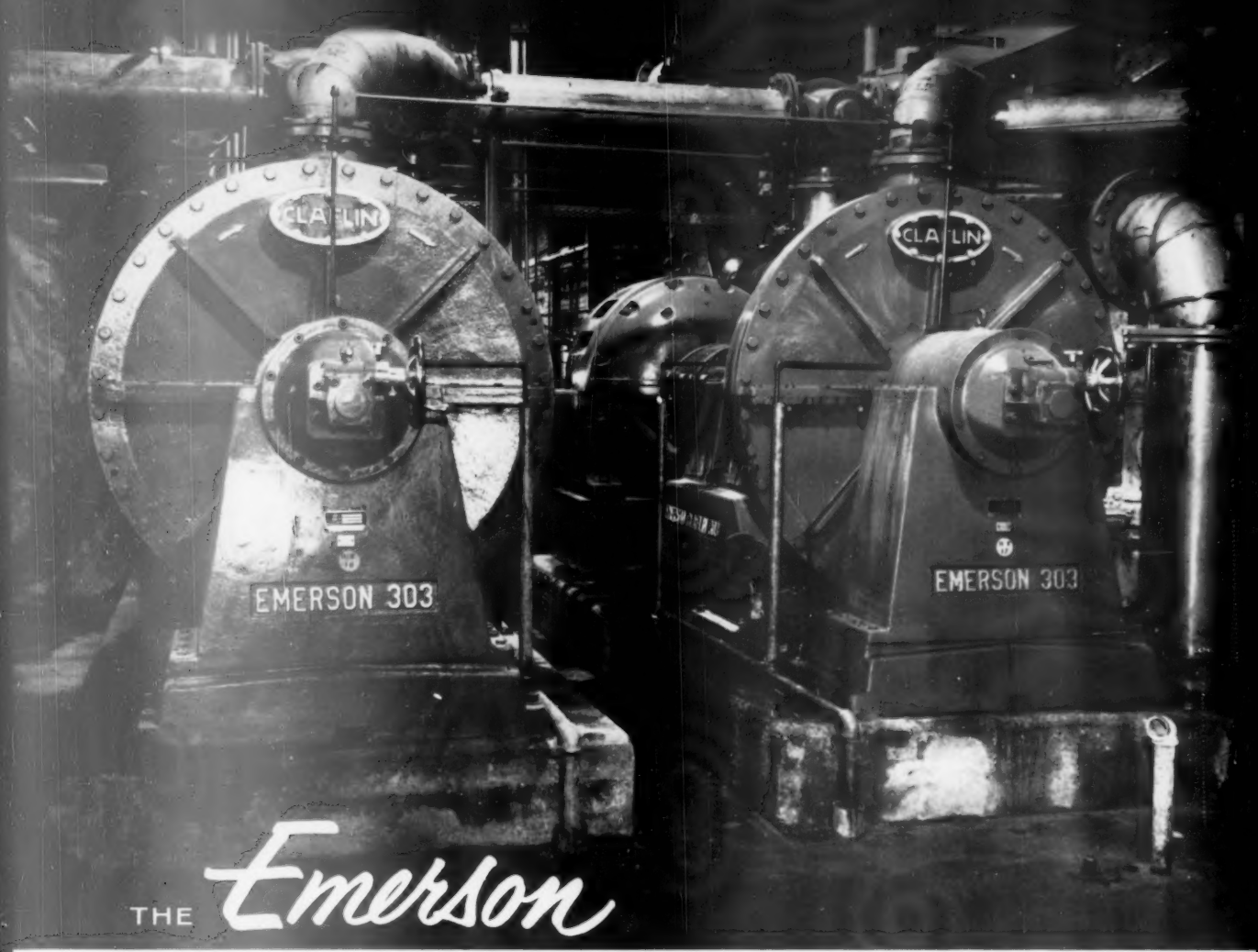


THE *Emerson*

CLAFLIN®

. . . . BUILT FOR EFFICIENT REFINING

Proved daily in over 700 mill installations on a wide variety of stocks

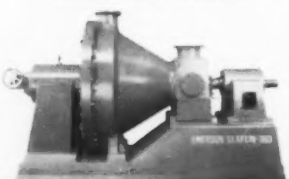
At FRASER PAPER, LIMITED *low HP consumption* Equipped with special alloy and Develomax® fillings, Emerson Claflins are producing high test characteristics on printing grades and sulphite convertings at Madawaska, Maine. As many as 190 tons per day of a blend of bleached kraft and/or hardwood and bleached sulphite are refined with as little as 4.2 HP day per ton.

At ALTON BOX BOARD COMPANY *rugged service year in, year out* The Emerson Claflin's demonstrated ability to give dependable, trouble-free performance in the defibering and high strength development of waste fibers using cast fillings in the manufacture of corrugating medium, liner, folding and set-up boxboard has led to repeat business from the Paperboard Division, Alton, Illinois.

At BRUNSWICK PULP AND PAPER COMPANY *a new installation* Emerson Claflins were chosen over all other refiners to process sulphate pine and gum fibers in the South's newest bleached board mill at Brunswick, Georgia.

At GEORGE O. JENKINS COMPANY *an unusual application* Faced with the difficult assignment of refining sole leather nubs left undefibered from 6 beaters, special tackle was designed. As a result, one Emerson Claflin has solved this serious mill problem in the manufacture of leatherboard at Bridgewater, Massachusetts.

ONLY EMERSON MAKES THE CLAFLIN



BOLTON EMERSON
TRADE MARK

Write today for descriptive literature

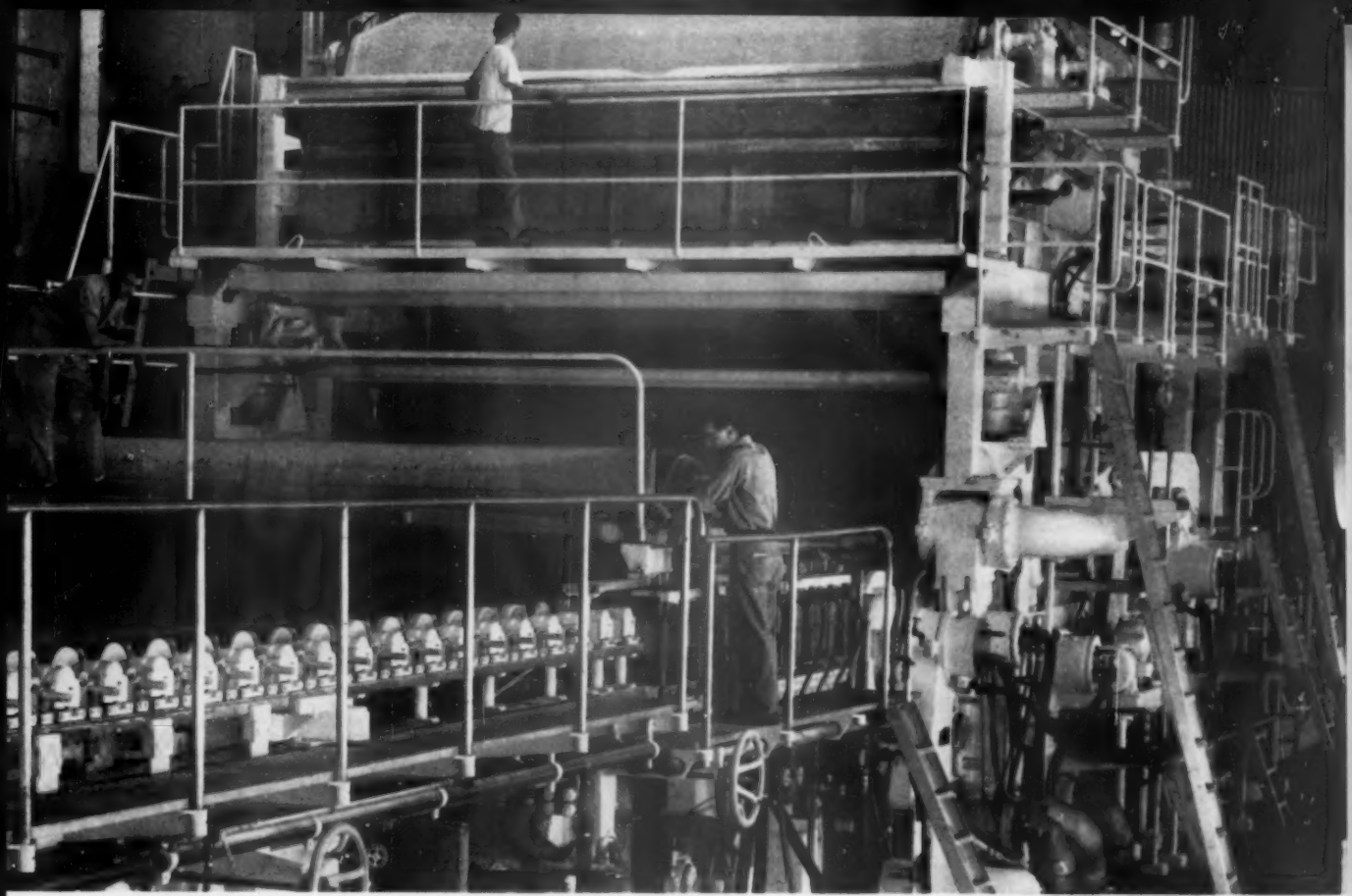
THE EMERSON MANUFACTURING CO., Division of
JOHN W. BOLTON & SONS, INC., Lawrence, Massachusetts

IN CANADA:
Pulp and Paper Mill Accessories, Ltd., Montreal

IN MEXICO:
Importaciones Y Exportaciones Mexicanas

IN JAPAN:
C. Itoh & Co., Ltd., Tokyo

IN EUROPE:
Bolton-Emerson S. A., Lausanne, Switzerland



P. H. Glatfelter Co., Spring Grove, Penna.

How 5 grade changes a day make Glatfelter more competitive

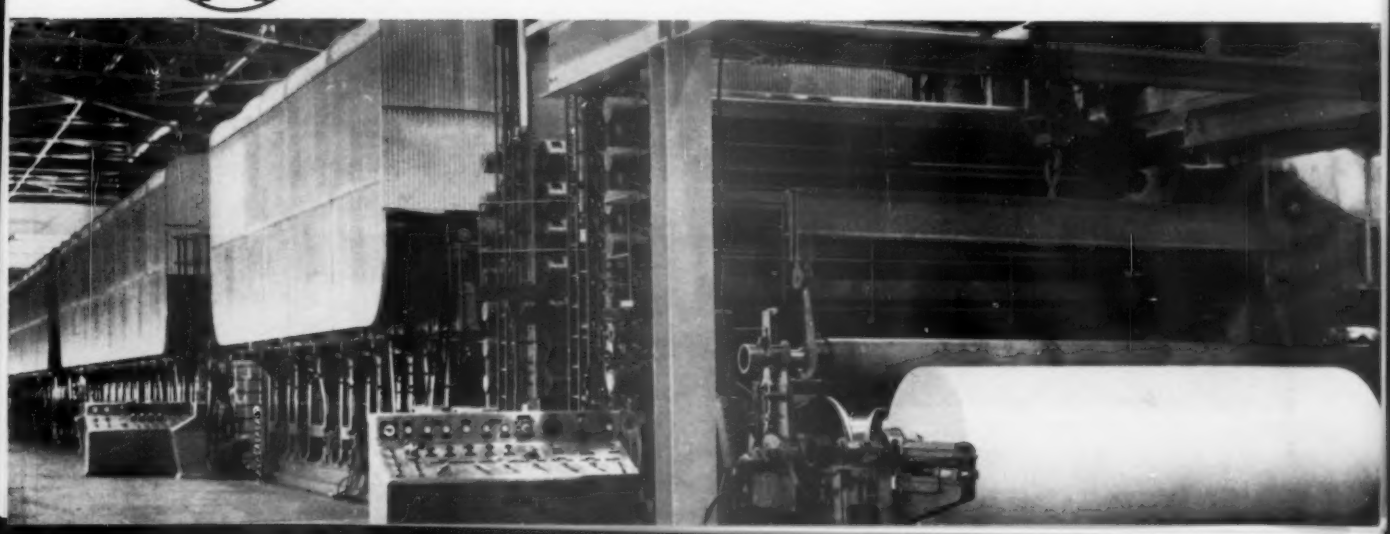
Flexibility is synonymous with Glatfelter's No. 7 188″ machine. Their ability to make up to 5 changeovers ranging from 13 lb. bond to 110 lb. drinking cup stock means orders are shipped within hours, overruns are unnecessary and warehousing is eliminated. Rice Barton engineering has provided this versatility which makes short runs profitable and improves the mill's competitive position.

Overcoming unusual papermaking requirements with specialty machines of the most modern design has shown Rice Barton's ability as a leading manufacturer. Consult us when planning your next modernization or expansion.

RICE BARTON

RICE BARTON Corporation, Worcester, Mass.

Fourdriniers • Press Sections • Dryer Sections • Calenders and Supercalenders • Reels • Winders • Head Boxes • Size Presses • Breaker Stacks
Differential Draw Control and Cone Pulley Drives • Pulping Equipment • High Velocity Air Dryers • Trailing Blade Coaters • Fibre-Flash Drying Systems



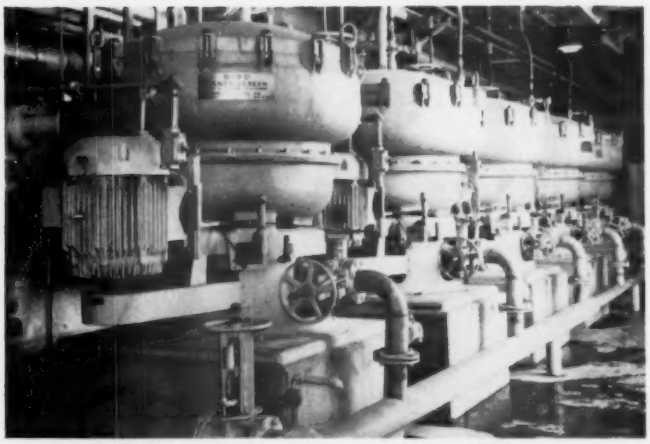
LARGE
MEDIUM
SMALL

You name the pulp or paper stock and the volume. We'll recommend the Bird Centriscreen installation that will deliver it uniformly clean, right from the word "go", and keep on doing it month in and month out, at low screening cost per ton.

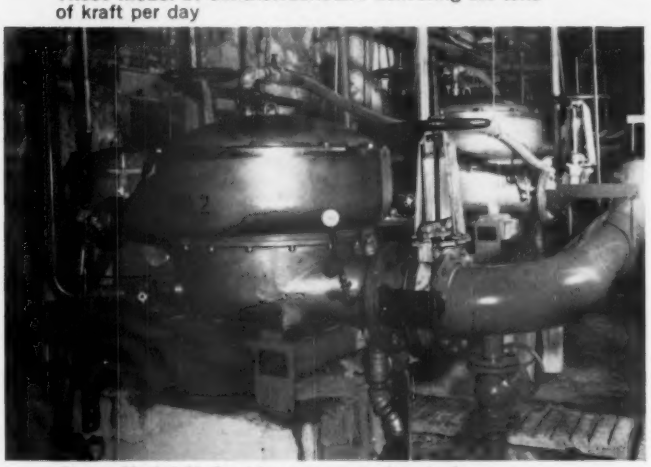
Centriscreens come in four sizes — *Model 6*, only 30″ high and 34″ around, delivers up to 1200 gpm; *Model 10* for up to 3500 gpm; *Model 14* for up to 6000 gpm; *Model 18* for up to 10,000 gpm.

BIRD CENTRISCREEN

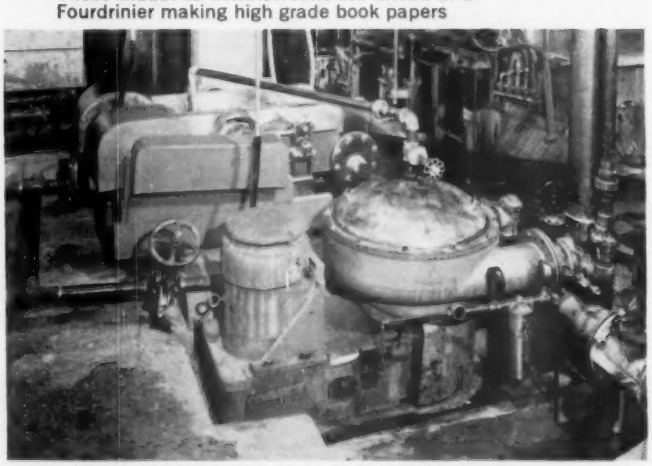
Ask us to mail you the latest Bulletin on this enormously successful, totally enclosed, high efficiency pressure screen that is rapidly becoming standard the world over — the Bird Centriscreen.



These **Model 14** Centriscreens are delivering 650 tons of kraft per day



These **Model 10** Centriscreens are ahead of a Fourdrinier making high grade book papers



This **Model 6** Centriscreen feeds a paper machine making top quality printing papers

BIRD MACHINE COMPANY

SOUTH WALPOLE, MASS.
REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND 4, OREGON • ATLANTA 9, GEORGIA
Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

December 11, 1961 PUBLISHED EVERY OTHER WEEK VOLUME 35, NUMBER 25 PULP & PAPER

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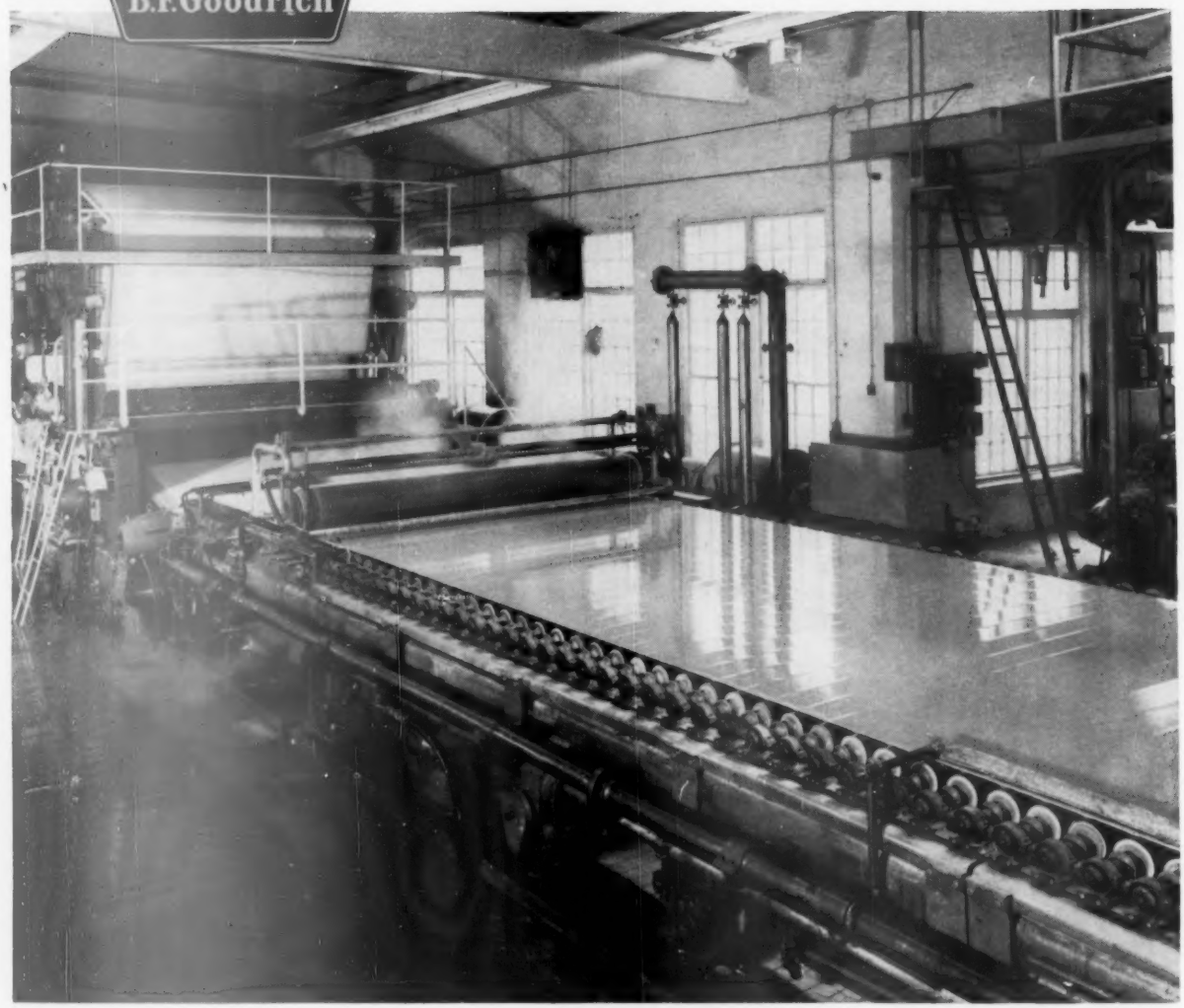
B.F.Goodrich



These rolls are on the level

Better water removal, no spotting with B.F.Goodrich table rolls

BECAUSE B.F.Goodrich table rolls are ground straight and true, they move evenly with the wire without developing high or low spots. They are dynamically balanced to prevent whipping even at high speeds. The sheet that's produced is smooth and uniform. No need to use deflectors even if rolls are running as fast as 1000 feet per minute.

These rolls are called "Dukbak" because they shed water fast, throw it down and away, not up against the wire. There's no danger of water spray returning to the wire and spotting the sheet. You get faster, more efficient water removal, better paper formation.

In the picture, you see part of the new fourdrinier installed at Crocker Burbank & Co., Association, Fitchburg, Mass. All 46 rolls were covered with B.F.Goodrich Dukbak. With this new equipment, production of high-grade printing papers has been increased 100%. The rolls have needed no maintenance of any kind.

There are many advantages—both from the standpoint of performance and cost-saving—that you can expect when you buy B.F.Goodrich rubber-covered rolls. We'll be happy to send you our new catalog—or have one of our men come to your plant to make recommendations. There's no obligation, of course. Just write *B.F.Goodrich Industrial Products Co., Dept. M-181. Akron 18, Ohio.*

B.F.Goodrich *paper mill rolls*

NEWS DIGEST...

U.S. and Canada in Common Market
is "highly desirable," says Norway's Commerce Minister Arne Skaug. His dominant Labor party wants Norway in Europe's Common Market, and then it will work for admission of U.S. and Canada, he said. His party does not have a clear majority and opposition groups favor associate (no political or decision-making rights) membership in EEC for Norway, instead of full membership. President T. B. McCabe of Scott Paper Co. says "I would not be surprised to see U.S. and Canada in some great common market some day." For more on markets and pulp-paper, see page 9.

The Wenner-Gren pulp projects
in north central British Columbia will be carried on, word from Stockholm indicates. Axel Wenner-Gren, one of the world's richest men, died Nov. 24, but he had ordered his second-in-command, Berger Strid, to carry out all his projects. One is a vast project for future development of power plants, one or more pulp mills, mines, etc., in the area north of Prince George, B.C. Mr. Wenner-Gren had interests in Swedish pulp and paper mills, banks, mines, etc., around the world.

More exports for paper firms are assured
says Rep. Melvin R. Laird (R., Wis.). U.S. paper, paperboard and pulp will be given a well-deserved break by International Cooperation Administration under a new "Buy American" policy, he says. Producers had objected to large purchases from competing nations. ICA will stop purchases in 19 countries, which in 1959 supplied 78% of all paper and pulp purchased. Biggest supplier outside U.S.A. is Finland. Rep. Laird says he does not understand why Finland was exempted, as it is a major competitor. In 1960, ICA bought more than $16 million in pulp, paper and board; 20% of it from the U.S.

Great Northern Paper's blade coater
has been ordered from The Black-Clawson Co. It will be an off-machine unit with two Flexiblades for two-sided coating with web widths up to 150 inches and speeds up to 3,500 fpm.

Crown Zellerbach A. G., Swiss subsidiary
of Crown Zellerbach Corp. and Royal Papermills Van Gelder Sons N. V., Amsterdam, will build a paper mill in Holland. Production will be bleached specialty grades of paper and board with rated capacity of 45,000-50,000 metric tons/year. Mill will be operated by Crown-Van Gelder Papierfabrieken N.V., a new company on a 50-50 partnership. Production will start in 1964; output will be marketed mostly outside Holland. Rolf B. Beck, asst. chief engineer at CZ Canada's central engineering in Vancouver, is project coordinator.

Not planning a new mill
says S. D. Warren, after reports were published (not in PULP & PAPER) about a new paper mill and increased capacity. Truth is, says Warren, that improvements will be made on existing pulp mill at Muskegon, Mich., and there will be some expansion in pulp capacity.

.....MARKETS

Printing, TV-radio ad battle

By VINCENT W. DE SALVO, Managing Editor

CHICAGO—A campaign to enhance the stature of the printed word and diminish the appeal of TV and radio to the potential advertiser has been set in motion by members of the printing, advertising and allied industries.

The group, called the Print Promotion Council, started mapping plans for the venture more than a year ago as the Organization Committee for Print Promotion. Its headquarters are located at 333 West Lake St. here.

In a statement of objectives, the council calls upon all industries whose livelihood in full or part depends on the printed word to support the campaign as a way of combating soaring gains in TV and radio advertising.

Objectives of the program are:

- To encourage use of print in all its forms "by focusing public attention on the vital importance" of reading in furthering the interests of the individual and the nation.
- "To improve, wherever possible, the creation, production, selling and application of print."

Support of the paper industry is considered by the council to be of vital importance in assuring success of its plan. The National Paper Trade Assn. formally approved the campaign at its meeting in Chicago in October. As far as is known, NPTA is the first —and only—industry group to pledge

Celebrating 75 Years of Service to the World's Pulp and Paper Industry

GOTTESMAN-CENTRAL NATIONAL ORGANIZATION

100 Park Avenue, New York 17, N.Y. • Gottesman & Company, Inc. • Central National Corp.
Central National Commercial Co., Inc. • Gottesman & Company Akt., Stockholm
Central National-Gottesman Ltd., London • Representatives in 75 World Markets

support so far.

However, other paper associations—and individual companies—are expected to give serious thought to joining the campaign if it shows promise of being at least a partial solution to the industry's perennial over-supply.

As one industry spokesman told PULP & PAPER, "Anything that has a chance of selling more paper, we're for." The spokesman, Robert Canfield, president of the Printing Paper Manufacturer's Assn., Inc., said, however, that he wouldn't count on the promotion as "a cure for the over-capacity problem." Only real solutions to the dilemma, he asserted, are normal growth and a moratorium on installing new machines until existing capacity catches up with demand.

But, he added, "a general promotion of this kind is valuable, if it is continuing and substantial. It will, at least, help the print media to hold its own."

A fortnight ago, the Print Promotion Council presented its program to PPMA at a meeting here.

It is estimated that over-capacity among printing paper manufacturers will average 4 per cent this year. This would represent an increase of 3 per cent over last year, and of 1 per cent over 1959. Next year, over-capacity is expected to drop to 1 per cent. (Figures are based on a six-day operating ratio.)

At publication time, the Newsprint Service Bureau had not been officially approached by the council to join, nor had it taken an official position as to membership. However, Bureau members are certain to be solicited since the group represents major U.S. newsprint producers. It has been reported that the Bureau's decision will be influenced by the attitude of the American Newspaper Publishers Assn.

Consensus among paper men questioned by PULP & PAPER is that the campaign will be worthwhile if it stimulates use of paper sufficiently to absorb some of this over-capacity.

The possibility that over-capacity will be reduced by a nationwide promotion of printed media, undoubtedly will be the main argument employed in attempting to enlist paper industry support. Primary purpose of the campaign, avowedly, is to boost magazine, newspaper, and direct mail advertising lineage, at the expense of TV and radio. If this result is achieved, however, it will also directly benefit all those industries—such as paper—who supply these media.

The council points out that, while advertising sales of the three major printing media last year still were far ahead those of TV, the latter had grown at an alarmingly faster rate during the preceding six years.

In the period between 1954 and 1960, TV advertising sales soared 113 per cent, as compared with the respectable—though relatively modest—gain of 46 per cent for printed media.

Last year, the three categories earned $4,299,802,286, against $682,371,069 for TV.

However, unless concerted action is taken to generate more reading by the public, thereby promoting increased advertising, TV will continue to close the gap, the council warns. In its statement, it asserts: "Although television's share of the aggregate advertising budget is still much smaller than the share going into national print media, it is now spiralling upward with startling speed. If something is not done now to stop or decelerate this upsurge, before long electronic media will become a serious threat to the traditional pre-eminence of print."

TV already has a bigger share of the money that is being spent by 13 of the country's largest agencies (see graph). Last year, their total billings for printed advertising totalled $847,581,830, as compared with $925,300,000 for TV and radio. In 1954, printed media led with $632,907,600, against $412,138,333 for TV and radio.

(The New York *Times* reported recently that a test by *Look* magazine on the relative impact of TV and magazine advertising showed them to be "remarkably close." *Look* plans to continue the test and then present it to Madison Avenue as a weapon in the fight for the ad dollar.)

Besides the publishing, paper and advertising business, the printing trades and all those industries who supply materials and equipment to the printing process are being urged to support the promotion.

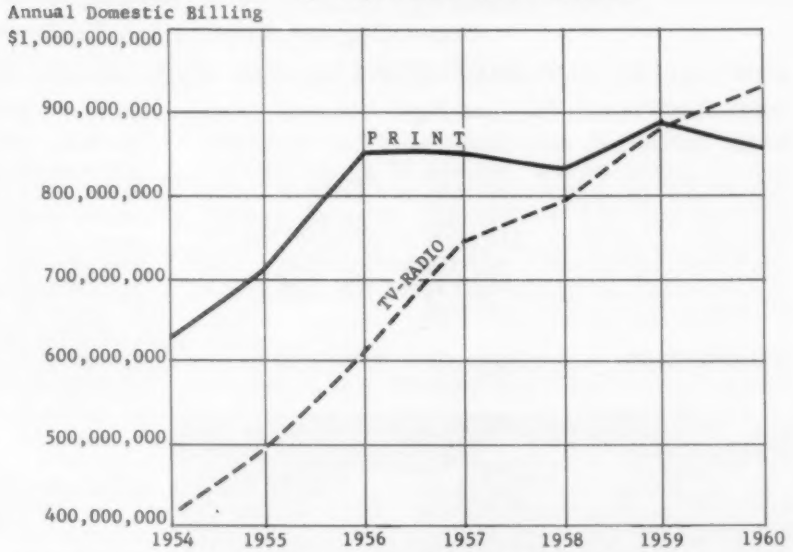
Very first organization to approve the move was the American Photoengravers Assn., which voted the council a lump-sum contribution in October, 1960. Five graphic arts unions, members of the Allied Trades Council, also have given approval.

The council will endeavor to reach the public with its message through four channels: advertising, public relations, industry self-improvement programs and special events. Briefly, the message is that ". . . people who read—consistently, selectively, and broadly—have the greatest chance of success and happiness, regardless of occupation and social status."

The council estimates it will need $1.5 million a year to carry out its program. Contributions of .001 per cent of gross revenues derived from the print and publishing industries will be solicited from members. Contributions now total $20,000.

Chairman of the 18-member council is Harry E. Collins, board chairman, Collins, Miller & Hutchings, and executive director is Robert E. Borden of this city. ■

How billings of 13 top agencies were shared



Source: Print Promotion Council, based on estimates in *Broadcasting* and *Advertising Age*.

. . . Fluid Power news

REPORT NO. 12,103
"HYTAC"* SYSTEMS ON NEW PAPER MACHINE

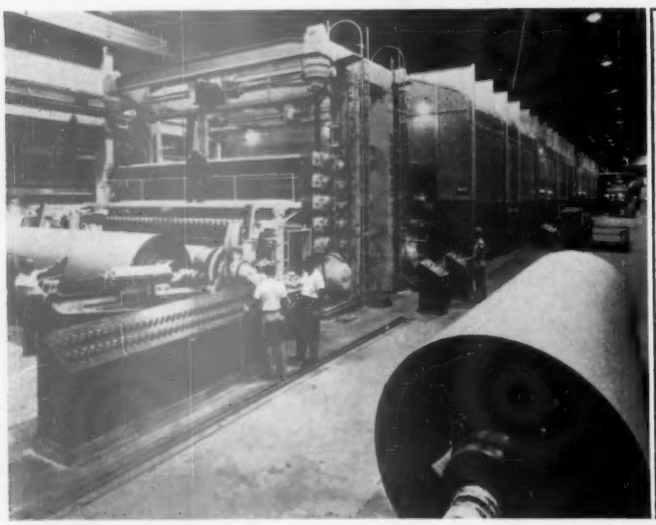
From Oilgear Application-Engineering Files

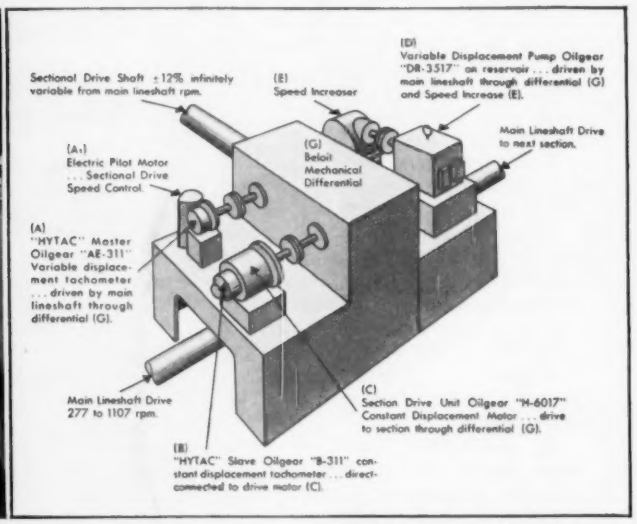
HOW OILGEAR *"ANY-SPEED"* DRIVES ON NEW PAPER MACHINE ACCURATELY CONTROL SECTION SPEEDS

USER: *West Virginia Pulp and Paper Company (Westvaco) (Builder—Beloit Iron Works, Beloit, Wisconsin)*

DATA: Systems to individually vary and accurately control speeds on four sections of a new, 264-in., $25,000,000 paper machine that will produce up to 225 tons daily of a revolutionary, patented, smooth, extensible kraft sheet. Machine is powered from a block-long main lineshaft with mechanical differentials at each section. Main lineshaft speed will vary over a 4:1 range—from 277 to 1107 rpm.

REQUIREMENTS: 1. A system that, when applied to each of four mechanical differentials, will provide individual, precision-controlled, infinitely variable increase or decrease of 10% over or under main lineshaft speed—as selected from 2 local, and 7 remote push-button stations. 2. Each system to maintain selected speed for its section within ±0.25% max. variation over a 50% load change at max. lineshaft speed. 3. Systems must also be: a. Compact. b. Impervious to moisture and daily high-pressure "wash-down." c. Thrifty on electrical power input. d. Trouble-free for continuous, heavy-duty, full-production paper machine drive service.



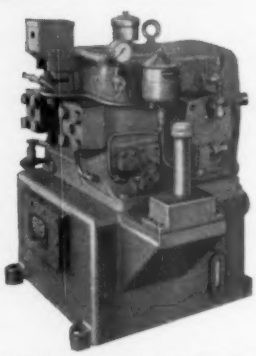

(D) Variable Displacement Pump Oilgear "DR-3517" on reservoir . . . driven by main lineshaft through differential (G) and Speed Increase (E).
Sectional Drive Shaft ±12% infinitely variable from main lineshaft rpm.
(E) Speed Increaser
Main Lineshaft Drive to next section.
(A1) Electric Pilot Motor . . . Sectional Drive Speed Control.
(G) Beloit Mechanical Differential
(A) "HYTAC" Master Oilgear "AE-311" Variable displacement tachometer . . . driven by main lineshaft through differential (G).
Main Lineshaft Drive 277 to 1107 rpm.
(C) Section Drive Unit Oilgear "H-6017" Constant Displacement Motor . . . drive to section through differential (G).
(B) "HYTAC" Slave Oilgear "B-311" constant displacement tachometer . . . direct-connected to drive motor (C).

SOLUTION: *Application-Engineered* Oilgear *Hytac** (hydraulic tachometer) controlled drives provide precise, individual speed control on each of four sections—3rd dryer, 1st calender, 2nd calender, and winder reel of Westvaco's new #3 kraft machine shown above. Drawing, above right, shows components of typical sectional drive. *These highly accurate, compact, heavy-duty systems have met or exceeded all originally specified requirements.* Examples: 1. Specified ±10% infinitely variable sectional speed control range exceeded by providing ±12% in actual operation. 2. Selected speeds are maintained within specified limits *regardless* of load change. 3. Production speeds increased to over 2000 fpm. Important "Oilgear-plus" features are: 1. Dual winder control that, with the mere flip of a control panel switch, converts winder drive from speed-controlled to tension-controlled . . . speed control prevents tearing the tail strip when starting a new core, while tension control provides good roll quality at full sheet width. 2. Cushioned, controlled acceleration and deceleration. 3. Positive overload protection. 4. Pressure and flood lubrication with continuous power fluid filtration.

OPERATION: Fluid from master tach (A) gives section drive speed command to control on pump (D). Slave tach (B) feeds back a flow signal proportional to actual section drive speed. When main lineshaft speed is increased or decreased, fluid flow from master tach (A) automatically increases or decreases to command section drive to follow lineshaft speed change. Through local or remote pushbutton stations connected to electric pilot motor (A_1) on master tach (A), operator can increase or decrease speed of each *Hytac* section infinitely up to 12% of prevailing lineshaft speed.

A second Westvaco kraft machine will have an *Application-Engineered* Oilgear Controlled Motion System to cover a 10:1 lineshaft speed range, and a wider sectional speed range adjustment.

*"HYTAC" Systems—An Oilgear Trademark



Left: Oilgear Sectional Drive Pump (D) with integral reservoir. *Right:* Oilgear Sectional Drive Motor (C) with direct-connected *Hytac* slave (B) to left.

Fluid Power drives and controls were selected after three years of development on this process and machine—from a 2-in. table model, through a 15-in. laboratory model and 60-in. pilot model. Conventional variable speed drives could not provide the sectional speed control required. "*Equipped with the most advanced precision controls known to the industry . . .*"—is the statement Westvaco has made concerning their new #3 machine.

. . . for the lowest cost per year—it's Oilgear!

For similar practical solutions to YOUR linear or rotary Controlled-Motion problems, call the factory-trained Oilgear Application-Engineer in your vicinity. Or write, stating your specific requirements, directly to . . .

THE OILGEAR COMPANY
Application-Engineered Controlled Motion Systems
1592 WEST PIERCE STREET • MILWAUKEE 4, WISCONSIN

New trade policy carried to Congressmen

Khrushchev may upset Scandinavia's plans to join ECM

By ALBERT W. WILSON, Editor

NEW YORK—For the first time in its long history, the American Paper and Pulp Assn. has come out, in effect, for a modified free trade policy ("as long as it's mutual," to quote APPA President Howard E. Whitaker).

The goal is to breach tariff walls that may hem in an enlarged European Common Market free only to its members. APPA reports as likely an 18 per cent differential on paperboard and paper, except newsprint which would be 7 per cent, and paper grade woodpulp, 6 per cent. If they come true, they would wipe out many important markets overseas for American exports, especially linerboard. Dissolving pulp will enter free.

To follow up this dramatic announcement of revolutionary APPA policy at a press conference Nov. 15, paper companies supporting the APPA declaration are going to contact Congressmen during the Christmas holiday.

A strategic time to swing these Senators and Congressmen behind the APPA program, it is believed, is when they are home, building up their political fences and feeling the pulses of their constituents. It is hoped that many will be contacted at this time when it is expected they will be more attentive to the APPA message than in the hurly-burly of Washington activity.

It is understood that representatives of paper companies will turn over to their Congressmen the Nov. 9 statement of APPA—a 12-page document developed by the association and its "appropriate committees," which have been studying "an entirely new dimension in the world trade complex."

Major cause of alarm in the American industry is the possibility that Scandinavian nations will be admitted inside the wall of the enlarged European Common Market, as well as Austria, an important exporter of both paper and pulp to other European nations. Britain, France and Germany are the major markets in which the Scandinavians, the Americans and Canadians are strongly competing. Right now, however, pulp producers are not attracted to the European market because of what some of them consider demoralizing price breaks.

Premier Khrushchev can spring a sensational surprise of his own, however. Reports from Scandinavian sources in recent days indicate there is a possibility that the delicate situation which has arisen between Finland and the Soviet Union may effectively prevent all, or some, of the Scandinavian nations from joining an enlarged ECM.

If this should happen, the Scandinavian nations, as well as the United States and Canada, would be outside the wall, but their competitive positions would be surprisingly shifted. The Scandinavians are now inside the European Free Trade Assn., which has included the United Kingrom, richest of all export markets for woodpulp and paper, where they have had an advantage which grows as EFTA tariffs are gradually reduced. However, there is a strong brake in British threats to buy less pulp from any country that overloads the British markets with paper, and both Scandinavian and American pulp companies are very cognizant of this.

If the United Kingdom goes into ECM, EFTA will die. If Chairman Khrushchev causes the Scandinavian governments to back up from ECM, the Scandinavians will be worse off than they are today—in the European markets, that is.

Russia already has effectively prevented Finland from becoming an outright member of EFTA, having been admitted only on a limited basis. Sweden feels its own strong neutral position protects Finland from further encroachments or even, possibly, military occupation by Russia. Swedes form a large portion of Finland's population, incidentally.

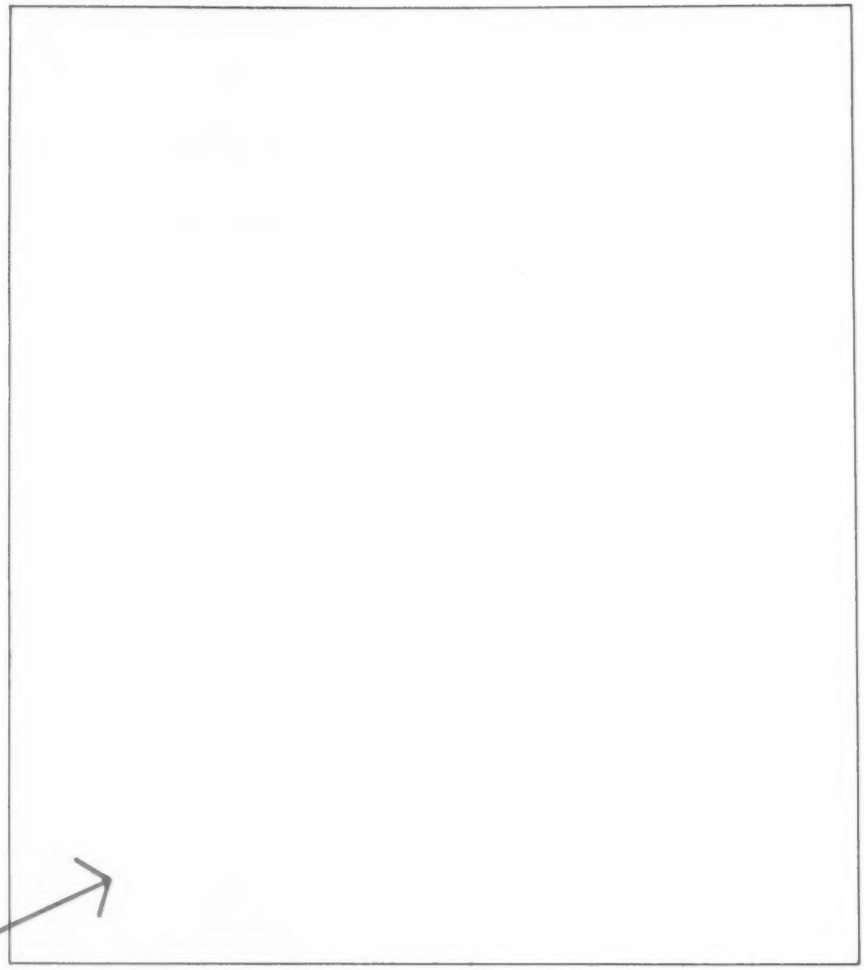
Despite the desires of the Scandinavian pulp and paper industries to get into the bigger European market, their governments at least in Sweden, may vote "no" if the Russo-Finnish relationship creates more danger for them all. Khrushchev has been quoted as saying he feels that USSR's northwest flank—on the Scandinavian side—is dangerous, that a NATO "invasion" might pour through that area. Of course, at this moment, these are still highly speculative questions, and Russia is playing the high cards. Meanwhile, Norway and Denmark, despite Russian pressures, seem certain new members of the Common Market. Russian threats to Finland could keep Sweden out, however.

Knowing it means lower American tariffs, APPA has taken its history-making stand. The Kennedy Administration has made it plain that U.S. tariffs must be reduced in exchange for concessions in Europe. The American paper industry, however, has very little to trade with, and this is a possible handicap. Woodpulp and newsprint, the great bulk of imports, already come in free.

Although U.S. paper tariffs are relatively very low, APPA and the American paper industry, which it represents, has been popularly regarded over many years as "protectionist." That's why the new stand is so sensational. The facts, however, are that paper tariffs have been lowered about as far as they can go in recent years.

It is interesting that a strong American woodpulp industry has developed without ever having protection, as in the case of nearly all other U.S. industries. Before the war, Secretary of State Hull made his famous pronouncement that this country "ought to" import its woodpulp. PULP & PAPER alone in this industry, editorially argued against this position, pointing out the danger this meant for the nation. PULP & PAPER was quoted in the Congressional Record but it didn't help. When the war came, Secretary Hull and others soon discovered that the submarine blockade effectively prevented pulp imports and the government, meanwhile, had to learn the hard way that pulp and paper were essential war materials. Unfortunately, three big pulp mills had been closed, and the nation was seriously handicapped in the first years of the war. Pulp was needed for smokeless powder to fire guns, and for a thousand and one other war requirements.

Longer ago than that, the newsprint industry "fled" to Canada when it was refused protection by Congress, on the demand of newspaper publishers. But many of these mills



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eventually got into higher value paper products.

U.S. gold reserves reportedly have now dropped to the lowest level in 20 years, and this is going to give support to President Kennedy if, as expected, he asks for sweeping powers to cut tariffs. PULP & PAPER was told by a high government official in Washington that "this tariff battle is going to be the biggest political fight" since Roosevelt's "Supreme Court packing plan." ■

. . . BRIEFS

Stora Kopparberg acquires new paper mill

STALLDALEN, SWEDEN—Stora Kopparbergs Bergslags AB has purchased 90% of the stock of AB Stjernfors-Ställdalen. Total stock of the company is $3 million. The company owns 30,000 hectares of forest land, one sulfite and one paper mill, a sawmill and an iron plant.

Chihuahua mill expanding cellulose pulp production

CHIHUAHUA CITY, MEXICO—After rumors that it might go into paper production, it is now learned that Celulosa de Chihuahua, S.A. at Anáhuac, state of Chihuahua, will expand instead in cellulose production for the Mexican market.

This mill, originally built by Snia Viscosa of Italy as a dissolving pulp mill, and then operated for the Mexican government by Kimberly-Clark Corp. as a market pulp mill, is going to expand kraft pulp production from 150 to 200 metric tons/day.

Bowater and Scott form Danish affiliate

COPENHAGEN—Scott Paper Co., its English affiliate, Bowater-Scott Corp. Ltd., and a Danish company have formed Bowater-Scott Skan to manufacture and sell sanitary paper products. The new Danish company will be capitalized at $100,000 with Bowater-Scott subscribing half of the common stock and C. Schous Fabriker A/S, a leading Danish retailer, subscribing the rest.

. . . . . CAPACITY

Paper and board adding 992,000 tons in '62

By MAURICE CASTAGNE, Associate Editor

NEW YORK—Between now and the end of 1964, the nation's paper and paperboard mills have budgeted almost two million tons of new capacity and almost half of this will come on line sometime next year.

Paper and paperboard capacity now stands at about 39,689,000 tons, is slated to reach 41,681,000 by the end of 1964. More than 1,257,000 tons of this will be from new machines; while, by making improvements to existing machines, capacity will be boosted another 736,000 tons.

These are some highlights from the joint capacity survey just released by the American Paper & Pulp Assn. and the National Paperboard Assn. A big question which some may ask about these capacity surveys is how accurate are they in the figures they forecast. It is interesting to note that in the capacity survey which the two associations made in 1958, paper and paperboard mills at that time estimated they would boost their capacity from the then total of 36,749,000 tons to about 39,344,000 tons by the end of 1961. This is less than a half of one percent within today's 39,698,000 tons. This survey, made more than three years ago, is considered remarkably accurate.

Many factors will determine what degree of accuracy will be achieved by the present survey in its estimates for 1964. Because there is not much that individual mills can do to change estimates for 1962—not that they want to—these figures are at least stable. The new mills and machines that have been announced this year

Paper capacity will rise by 921,000 tons by 1964

	TOTAL PAPER	Newsprint	Uncoated Groundwood	Uncoated Book	Machine-And Off-Machine Coated	Fine	Special Industrial And Coarse	Absorbent	Tissue
Capacity End of 1960	16,069	2,310	904	1,812	2,093	1,893	3,956	834	2,265
1961									
New Machines	411	52	–	40	62	118	101	16	23
Improvements	205	3	– 52	– 42	92	91	12	30	71
Capacity End of 1961	16,685	2,365	852	1,810	2,247	2,102	4,069	880	2,359
1962									
New Machines	323	74	–	31	82	22	28	8	78
Improvements	200	– 82	85	– 30	138	35	7	7	41
Capacity End of 1962	17,208	2,357	937	1,811	2,467	2,159	4,104	895	2,478
1963									
New Machines	74	–	–	–	–	24	31	–	19
Improvements	119	– 26	12	17	70	30	– 6	2	20
Capacity End of 1963	17,401	2,331	949	1,828	2,537	2,213	4,129	897	2,517
1964									
New Machines	185	–	–	29	40	39	76	–	–
Improvements	20	– 37	14	3	31	18	– 14	2	3
Capacity End of 1964	17,606	2,295	963	1,860	2,608	2,270	4,192	899	2,520

Detail does not necessarily add to total because of rounding. (Compiled by American Paper and Pulp Association)

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Paperboard slates 1,003,000 tons growth by 1964

		CONTAINERBOARD								BOXBOARD			
		LINERS	CORRUGATING MATERIALS										
	TOTAL PAPER-BOARD	Cylin-der Kraft	Fourd. Kraft	Jute	Kraft	Semi-chem-ical	Straw	Other	Container Chip & Filler Bd.	Folding	Set-Up	Special Food Board	ALL OTHER
Capacity End of 1960	17,915	151	5,297	929	70	2,130	117	712	286	3,423	665	1,641	2,494
1961													
New Machines	537	–	344	–	–	149	–	–	–	–	–	–	44
Improvements	129	– 40	161	3	– 39	– 11	– 60	6	1	45	– 19	45	37
Capacity End of 1961	18,581	111	5,802	932	31	2,268	57	718	287	3,468	646	1,686	2,575
1962													
New Machines	379	–	266	–	–	–	–	–	–	78	–	19	16
Improvements	64	–	– 31	– 8	–	36	–	4	– 2	15	3	12	35
Capacity End of 1962	19,024	111	6,037	924	31	2,304	57	722	285	3,561	649	1,717	2,626
1963													
New Machines	125	–	31	–	–	–	–	–	–	47	–	47	–
Improvements	144	–	67	–	1	27	–	4	–	20	2	17	6
Capacity End of 1963	19,293	111	6,135	924	32	2,331	57	726	285	3,628	651	1,781	2,632
1964													
New Machines	141	–	16	–	–	78	–	–	–	16	–	31	–
Improvements	150	–	116	–	– 2	3	–	–	–	3	1	19	10
Capacity End of 1964	19,584	111	6,267	924	30	2,412	57	726	285	3,647	652	1,831	2,642

(Compiled by National Paperboard Association)

usually call for startup sometime in 1963, and it is these figures, together with those for 1964, that the industry can change its mind about—if demand for its products adjust up or down.

Next year, new machines will bring in 710,000 tons of new capacity and improvements to existing machines, 283,000 tons. In 1963, some 221,000 tons of new capacity will come from new machines, 270,000 tons from existing ones; while in 1964, 326,000 tons will be from new machines, 183,000 from existing machines.

Growth grades in paper are machine and off-machine coated, where some 361,000 tons of new capacity are slated. New paper capacity between now and the end of 1964 will amount to 921,000 tons, of which about 582,000 tons will be from new machines, 339,000 tons from sprucing up and speeding up existing machines or changing to heavier grades.

For instance, in the face of declining U.S. consumption of newsprint, down about 8%, and the status quo position in the price of newsprint, only 74,000 tons of new capacity by the addition of a new machine is scheduled for next year, while some 82,000 tons are being diverted. This is presumably the amount which Great Northern Paper Co. is shifting from newsprint production at its Millinocket, Me., mill to coating grades. In addition, in both 1963 and 1964, more newsprint capacity will be diverted; 26,000 tons in 1963 and 37,000 tons in 1964.

Uncoated groundwood grades will add another 111,000 tons in the next three years; although some 52,000 tons have been diverted to other grades this year. Uncoated book, showing the trend toward coated grades, will see only a 50,000 tons increase by the end of 1964. Some 42,000 tons were diverted this year and another 30,000 tons are scheduled to be switched next year.

Machine coated papers will increase from the present 2,247,000 tons capacity to about 2,608,000 tons by the end of 1964. Some 154,000 tons were added this year; 220,000 tons are scheduled for next year (82,000 from new machines, 138,000 from improvements); 70,000 tons from improvements are scheduled for 1963 and in 1964, 40,000 tons from new machines and 31,000 from improvements.

Growth in tissue grades is shown by plans for the next three years. On top of the 94,000 tons of new capacity brought in this year, tissue mills plan another 119,000 tons next year and another 39,000 in 1963.

Paperboard capacity will grow by another 1,003,000, from its present total capacity of about 18,581,000 tons to about 19,584,000 tons. This is on top of an increase of 666,000 tons this year. Some 645,000 tons will be added through the addition of new machines and 358,000 tons from improvements.

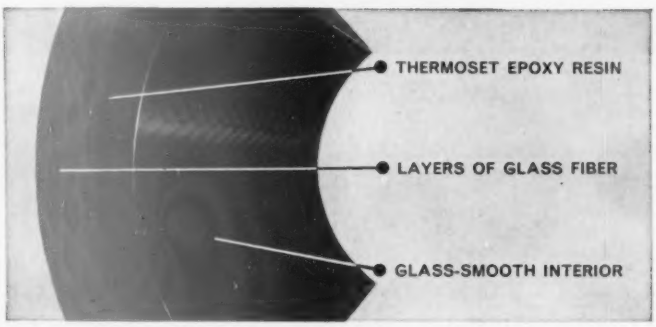
Fourdrinier kraft liner mills added 505,000 tons this year, expect to add another 266,000 tons next year, although some 31,000 tons will be diverted. They will add another 98,000 tons in 1963 and 132,000 tons in 1964.

Folding boxboard mills say they will add about 179,000 tons in the next three years; 93,000 tons next year, 67,000 tons in 1963 and 19,000 tons in 1964.

Special foodboard, the perennial growth paperboard grade (a substantial portion of which is in milk containers), added 45,000 tons this year to bring capacity up to 1,686,000 tons. About 31,000 tons will be added next year, 64,000 tons in 1963 and 50,000 tons by the end of 1964 to bring total capacity up to 1,831,000 tons.

According to some industry estimates, the paper and paperboard industry has operated at these rates since 1957: 89% in 1957; 85% in 1958; 91% in 1959; about 89% for 1960; and close to 90% for this year. These rates are based on a six-day week. ■

1962 TAPPI Gold Medal Winners! — shared by two this time: W. BOYD CAMPBELL and C. EARL LIBBEY.



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"Impossible" corrosion, temperature and pressure problems solved by Fibercast® epoxy pipe

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Fibercast Tubing (right) used to suspend a 1,200 lb. pump for 3 years in a salt water supply well. *There was no loss in strength.* The damaged plastic-coated steel nipple (left) was used in the same installation, failed after 3 months' service.

WHAT is Fibercast?

It is a centrifugally cast, thermoset, epoxy resin reinforced pipe that handles temperature and pressure problems where no other non-metallic pipe will do.

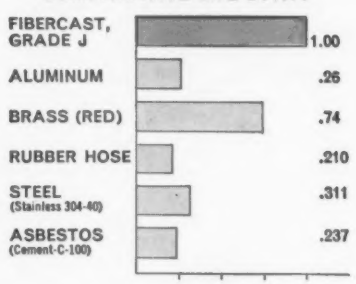
Its body of woven glass fibers provides resistance to high tension forces. These fibers, combined by adhesion, are imbedded and bonded by heat in epoxy resin. The result is a strong, long-lasting pipe with remarkable ability to withstand high pressure and temperature in corrosive environments.

WHY use Fibercast?

For a multitude of reasons. Because its advantages range from superior resistance to heat, pressure and corrosion, to its ease of handling, light weight, dielectric properties and structural stability. Because Fibercast's long service life alone would justify choosing it over other materials. Because even more expensive metal pipe or pipe with thermo-plastic interior coatings cannot match Fibercast's proven durability. Case histories and accurate testing have proved over and over that Fibercast performs better, lasts longer, costs less. Out of 338 common corrosive solutions, Fibercast competently handles 320. And naturally, Fibercast's unique and lasting qualities under such conditions mean that it drastically reduces maintenance and replacement costs, too.

Although Fibercast's light weight makes it correspondingly easy to work with (it is less than 25% the weight of steel), it has the same basic linear coefficient of expansion as steel (7.06 x 10^{-6} to 8.25 x 10^{-6} in./in./°F.). Fibercast's strength permits installation on pipe racks with span lengths generally used for metal pipe.

COMPARATIVE LIFE DATA*



**Basing Fibercast as unit life of 1 and others as comparative percentages thereof.*

The pipe has a smooth interior, with a Hazen-Williams C Flow Factor of 147. This cuts friction losses, aids flow and tends to resist build-up. It is a non-conductor (accepted by the electrical industry as a superior insulator), and is not subject to cold flow. A low coefficient of heat transfer (3.0 x 10-3 Cal/CM²/sec/CM°C.),

minimizes heat loss and may even eliminate heat tracing.

All three major systems of joining all pipe are used with equal success on Fibercast. They are: standard flanged, cemented, and threaded and coupled with a complete selection of Fibercast fittings (the world's largest line of corrosion-resistant epoxy pipe fittings).

Safety, too, is an important reason for using Fibercast Pipe in transporting dangerous chemicals, particularly in areas where the pipe is adjacent to personnel. Most piping materials corrode undetectably from inside-to-out and can suddenly burst without warning, inflicting injury to personnel. Because of Fibercast's woven glass fiber construction, such occurrences, if they ever occur, *are* detectable in minute, repairable leaks.

WHO uses Fibercast?

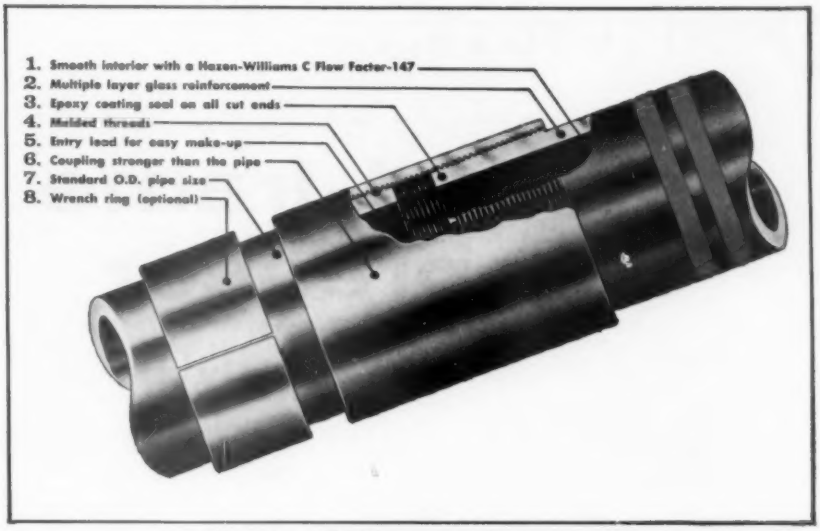
The petroleum industry . . . chemical . . . petro-chemical . . . nuclear energy . . . textile . . . paper . . . and food-processing industries . . . countless operations handling acids, alkalies, salt water and other corrosive liquids under pressure can all use Fibercast profitably.

In oil country, Fibercast is already

Workman is painting a section of Fibercast Pipe bearing 32% HCl at Shell's Texas Chemical plant. Note that Fibercast has sufficient strength for installation on span racks with the spacing normally used for metal pipes.

widely acclaimed for superior performance in rugged, abusive and even high pressure installations like salt water disposal wells and horizontal lines. In cases where other pipe and tubing required replacement after just a few weeks of service, Fibercast is still performing efficiently after many years.

In petro-chemical and chemical-processing plants, Fibercast is valued


1. Smooth interior with a Hazen-Williams C Flow Factor-147
2. Multiple layer glass reinforcement
3. Epoxy coating seal on all cut ends
4. Molded threads
5. Entry lead for easy make-up
6. Coupling stronger than the pipe
7. Standard O.D. pipe size
8. Wrench ring (optional)

8 Points of Fibercast Superiority

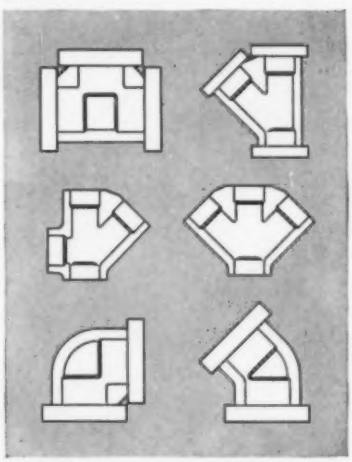
not only for high heat and corrosion resistance, but also for its remarkable maintenance of the purity of the solutions it is required to carry. Such installations range from Fibercast pipes which carry 37% hydrochloric acid at ambient temperatures to lines carrying solutions containing brine, alum, and other sulphates, sulphuric and phosphoric acids, and other damaging chemicals.

Food-processing industries, among the most demanding of all industries in purity, corrosion and heat standards of operation, know the long-term benefits of using Fibercast. Fibercast is especially effective in the processing of foods requiring use of sulphuric and phosphoric acids (such as corn syrup, starches, gelatins), as well as brines and other highly corrosive acids and solutions.

The operating conditions peculiar to the man-made textile and paper processing plants are also improved by the use of Fibercast Pipe and Fittings. The ever-growing demands of all industry . . . the rigid quality controls imposed by governmental and other agencies . . . the unique and often unsolved needs of new processes and methods . . . all of these factors help to create "impossible" problems that can be solved by the use of Fibercast.

Complete Line of Fittings

Fibercast provides fittings to solve any fitting problem. Besides a vast stock of standard sizes and types, Fibercast also designs and makes special fittings to meet individual requirements. All, of course, have the same corrosion, pressure and heat resistance properties of Fibercast Pipe and Tubing. A few of the regularly stocked types are shown in the line drawings below



If *you* have an "impossible" corrosion, temperature or pressure problem, consider Fibercast. This remarkable pipe can save you money as it has so many other industries. Get the full story without obligation now. Simply mail this coupon.

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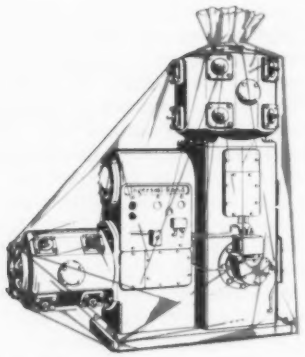

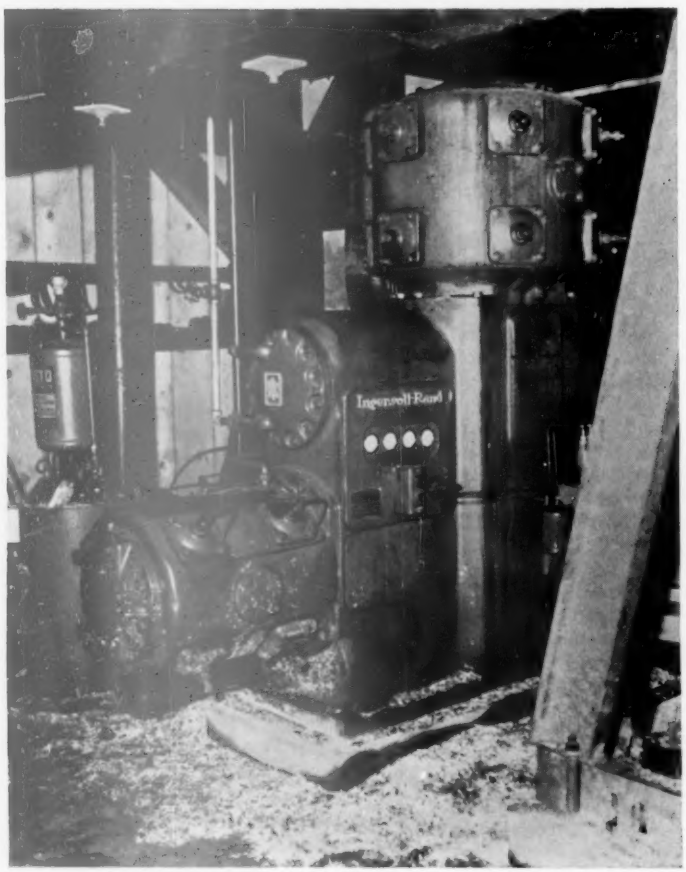

This Ingersoll-Rand XLE two-stage compressor supplies all plant air for the Simpson Logging Company's Shelton, Wash., plant — one of the largest whole-log barking plants in the world.

In a logging plant, it's virtually impossible to keep things clean, due to the nature of the job. Chips and sawdust abound, and machine maintenance is therefore a major problem.

In its huge whole-log barking plant at Shelton, Wash., the Simpson Logging Company solved its compressor maintenance problem with an Ingersoll-Rand XLE compressor. Inside the completely sealed frame of the XLE, all running parts stay clean as a whistle. Dirt, normally the major cause of wear, can't get in.

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NPA head sees '62 as year to recoup losses

WEST POINT, VA.—Sture G. Olsson, re-elected to a second one-year term as president of the National Paperboard Assn., told PULP & PAPER following the NPA meeting that "under strong marketing conditions predicted for 1962 we hope to do something about recovering costs."

The 41-year-old NPA leader said, "Our own experience this fall, plus the optimistic forecasts of economists, indicates that paperboard manufacturers, individually, should have the necessary strength and the opportunity next year to recoup their price losses as well to do a better job of offsetting increased production costs."

He took exception to published references to so-called "over-capacity." "It isn't the right word," he said, "since there are always seasonal high peaks in paperboard in the spring and the fall, when we normally need all the capacity we can get."

Associates in NPA credit

Mr. Olsson with a constructive mixture of rugged conservatism and youthful enthusiasm for sound progress and change. He has participated more and more in major industry councils of the pulp, paper and board industries.

He went to work at The Chesapeake Corp. of Virginia as a young engineer 15 years ago, after being graduated from the U. of Virginia and wartime service in the Navy. He has been president and general manager since Oct., 1952.

His late father, Elis Olsson, migrated from Sweden as a young engineer and helped build the first successful kraft mill in the Western World at Brompton, Canada, early in this century. There was only a small pulp mill here at West Point when he came as general manager (Sture was born here). The mill had been a major interest of a multimillionaire Norwegian, Henneveg, a shipping magnate of World War I years. Then came hard times for the small pulp mill and it would have closed, except that Mr. Olsson put his own small savings into it and won support of bankers and other local people.

Today this mill's capacity has grown to 750 tons daily of kraft pulp and 600 tons daily of paper and board. Most of the growth has been in the ten years since Sture Olsson became vice president of manufacturing, and nine years since he has been president. Supporting and aiding in this program have been his vice presidents, O. D. Dennis, Henry Vranian, Erik Zimmerman, his older brother Carl Olsson, who died last summer, and other key staff men. ■

Over-capacity isn't the right word—STURE G. OLSSON

Paperboard production having a good year

NEW YORK—All records as far as production and orders are concerned are being broken by the nation's paperboard mills. An alltime high was reached in the third quarter of this year, Al Newburg, statistician for the National Paperboard Assn., told some 200 members gathered at the association's annual meeting here in November.

During 1959, the industry's previous peak year, the average weekly production was 307,000 tons, he said. In October, 1961, an average of 353,000 tons of paperboard was made weekly, with one week being over 356,000 tons.

With orders and production at record peaks and sufficient capacity to satisfy customer needs, the industry's prospects are excellent, said Mr. Newburg.

The outlook for 1962

is even better, reports Dr. Herbert E. Johnson, vice president of U.S. Economics Corp. Demand for paperboard is expected to average 339,000 tons/week, a 6.6% boost above 1961. Expected demand for the fourth quarter of this year should reach 329,000 tons/week, which would make this year's production average 318,000 tons/week, a gain of 4% over last year.

A somewhat higher rate of increase is likely in the first and second quarters of 1962, moderating in the third quarter and demand will again move up in the fourth quarter. Containerboard should increase 7%, while folding boxboard will move up 4%. ■

New battle looms for milk containers

NEW YORK—Now that polyethylene-coated milk cartons are all set to move in on the wax-coated milk container, a new rival has come on the scene. A Chicago dairy is reportedly test marketing a gallon throwaway all-plastic milk container, according to Modern Packaging magazine (Nov., p. 139). The dairy reports it has had favorable consumer acceptance, in spite of the fact that the plastic containers retail at 5¢ to 15¢/gallon higher. The new container is made from a 50 mil polystyrene sheet.

Plugging for the polyethylene-coated milk carton is Ex-Cell-O Corp., which has begun marketing these products after extensive field testing. Another interested observer is U.S. Industrial Chemicals Co., which supplies some of the polyethylene resin used.

"Polyethylene coated milk cartons are replacing the wax-coated milk containers," says USI's Jack Moffett, asst. mgr. of polyethylene sales. "At the present rate of development," he

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LAYNE OFFERS COMPLETE WATER SERVICE: Initial Surveys • explorations • recommendations, site selection • foundation and soil-sampling • well drilling well casing and screen • pump design, manufacture and installation • construction of water systems • maintenance and service • chemical treatment of water wells water treatment—all backed by Layne Research. Layne services do not replace, but coordinate with the services of consulting, plant and city engineers.

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adds, "we expect an annual polyethylene demand of over 100 million lbs, for coating milk cartons by 1965. Because of the brighter appearance, greater scuff and chip resistance of this type of coating, we believe that by 1965 more than half a million tons of milk carton paperboard will be so coated. By year's end, roughly 20% of all milk cartons will be poly coated."

The next probable market for plastic containers would be orange juice and other fruit flavored drinks.

One estimate says that about 16 billion paperboard containers are used each year.

Another entrant for milk containers has been announced by Inland Container Corp. It says research is nearing completion on a "Polygal" milk container, a combination fiber box and polyethylene liner, designed to replace the "expensive and bulk stainless steel and galvanized milk cans used by large institutions and restaurants." Inland has designed and will market attractive dispensers for its "Polygal" containers. The company has applied for a patent for its new "Polygal" process, which is said to be strong, light, inexpensive and disposable. The milk packaging industry, cites Inland, is a half-billion dollar business. ■

West Virginia develops new white papers

NEW YORK—New fuel to the old fire of which white is whiter is being added now that West Virginia Pulp and Paper Co. is introducing a new line of coated printing papers. They are said to be scientifically and aesthetically styled to meet consumer preferences in shade, brightness, texture and gloss.

West Virginia's research team, working with Faber Birren, color authority, for nearly two years, has come up with what they call a "whiter" white which does not reflect the distinct green, yellow, red and blue hues of other whites.

Explains Mr. Birren, "The white of West Virginia's new coated grades is soft, neutral and luminous in quality. It is as bright as any of the "cold" whites, but gives the printed results a luminous glow that is highly pleasing to the eye."

White shades of the company's coated paper line are identified by such names as Snowtone, Skytone and Cleartone. From a previous list of some 22 different product names, the Sterling, Velvo and Blend brands have been kept to identify the new coated papers. These names have been combined with a series of suffixes to denote end use and finish.

Snowtone is for coated two-sides Sterling grades; Skytone for coated one-side Sterling grades and Cleartone for Velvo grades. Under this system, West Virginia's top grade of coated letterpress paper will be known as Sterling Print-Gloss, Snowtone; the top grade of coated offset paper as Sterling Litho-Gloss, Snowtone; and web offset as Sterling Webgloss, Snowtone.

Industry interest stems from the fact that West Virginia is now completing a $60 million growth program at its Luke, Md., mill, with two new on-machine blade coating units contributing substantially to the industry's capacity in these grades. ■

Synthetic fiber sheet looks like paper

FITCHBURG, MASS.—Commercial development of a synthetic fiber sheet similar in appearance to paper is being undertaken jointly here by Crocker, Burbank and Co. and American Cyanamid Co. The sheet, developed by American Cyanamid, is made entirely of acrylic fiber and is produced on a paper machine. Some uses for the new product are in electrical, filtration and plastics fields.

The synthetic sheet does not require a binder or bonding agent to hold the fibers together. Compared with typical woodpulp paper, the sheet picks up negligible moisture, even under conditions of high humidity. It is said to be resistant to all common solvents and most chemicals.

Other important qualities, says Cyanamid, include its superior electrical insulation properties, dimensional stability, resistance to ultraviolet light and compatibility with many resins.

Since the sheet requires no binder and can be made on conventional papermaking equipment, products costs are expected to be less than similar sheets which require a binder.

Cyanamid's acrylic fiber sheet is a completely homogenous product composed of acrylic fibers, contains no binder, sizing or other material. It is white and has the formation surface characteristics of paper. The sheet may be dyed or printed. It is compatible with most resins. It is thermoplastic and may be heat-formed into permanent shapes.

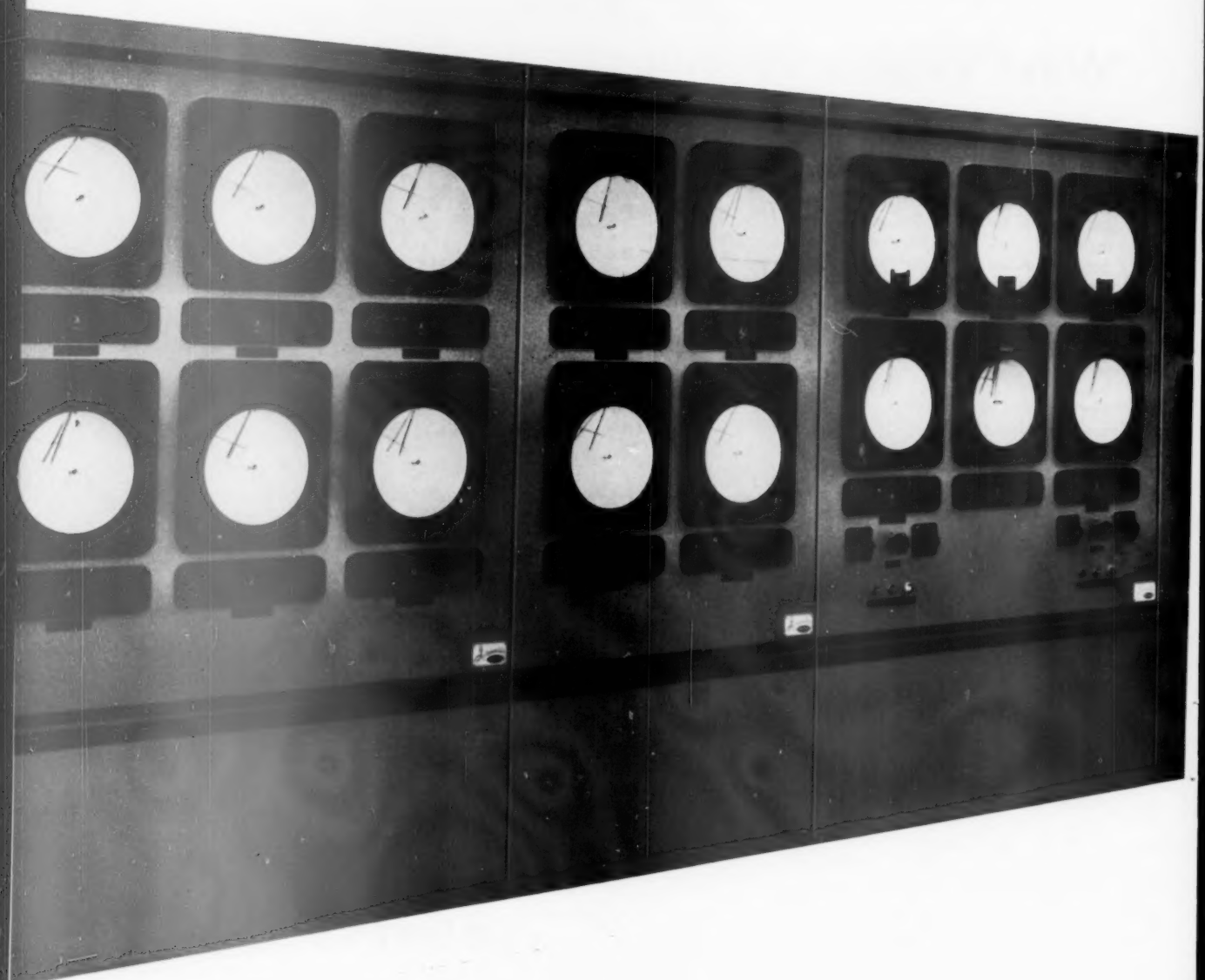
Based on a typical 50 lb. basis weight, physical properties of the sheet are, 5-mil caliper: dry tensile of 8.0 lbs/in.; wet tensile: 5.5 lbs/in.; tear: 30.0 gms; dimensional stability (change between 90 and 15% RH): 1.25%; moisture content at 90% RH: 2.0%; at 50%, 1.0%; solubility: insoluble in all common solvents. ■

Expanded power paves way for new machine

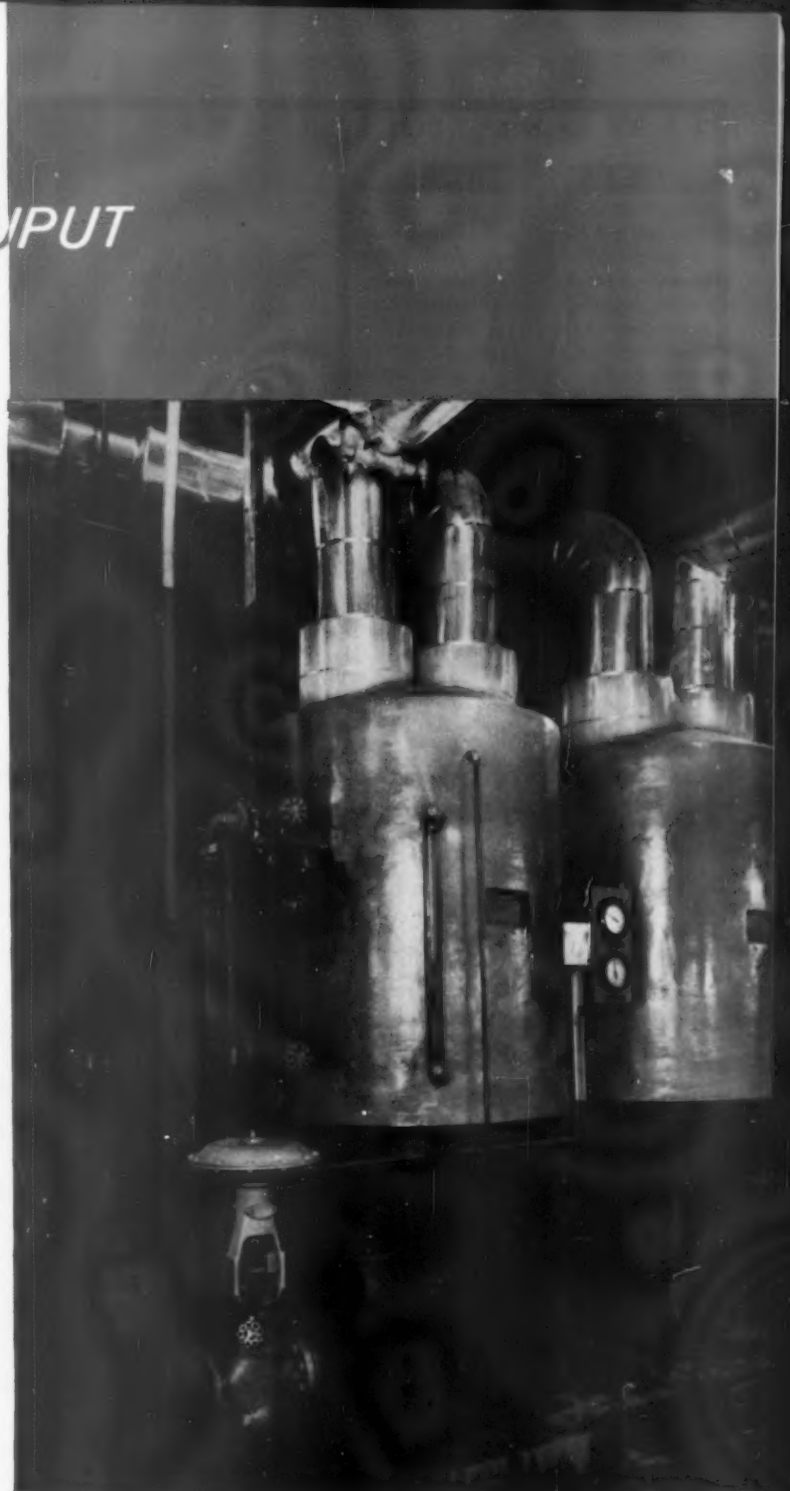
KAUKAUNA, WIS.—Expanded power facilities here at Thilmany Pulp & Paper Co. have opened the way to installation of a new paper machine which the company has just bought (PULP & PAPER, page 15, Nov. 27). Expanded power facilities include a new 390 ton recovery boiler and a 15,625 kilowatt steam turbine generator.

The new machine, which will be the thirteenth in the 78-year-old company's history, is designed to balance base paper requirements for Thilmany's converting operations and

Mason-Neilan Drier-Drainage Systems Step Up Quality,



Uniformity and THRUPUT



A rapidly increasing number of mills are learning at first hand that accurate differential control and properly sized system components—features of Mason-Neilan drier-drainage systems—result in higher quality, greater uniformity and increased production.

Here's what they report:

Improved Heat Transfer—proper evacuation increases the efficiency of driers, improving heat transfer to the sheet.

Improved Quality—complete control of all driers prevents overdrying of wood fiber and too rapid drying of a sheet.

Uniformly Dried Sheet—proper elimination of condensate and noncondensables results in more uniform drying across the entire drier shell surface.

Increased Production—continuous evacuation of condensate, air and noncondensables from driers increases drier efficiency, permitting greater machine speeds, increasing machine capacity.

Reduced Power Requirements—proper evacuation reduces drier load, thus cutting horsepower requirements.

Longer Felt Life—since most felt driers do not have a separate drive, but are driven by the felt, proper evacuation of these driers results in longer felt life.

Reduced Maintenance—optimum removal of condensate eliminates off-balance forces which can cause wear in drier journals, possible strain in machine drive and breakage of stationary siphon pipes.

Mason-Neilan systems are available for single- and multiple-section machines and Yankee Driers. Complete engineering service and the supplying of all system components provide undivided responsibility assuring a successful installation. For details send for Bulletin PD-113.

Products that Work for Your Profit...

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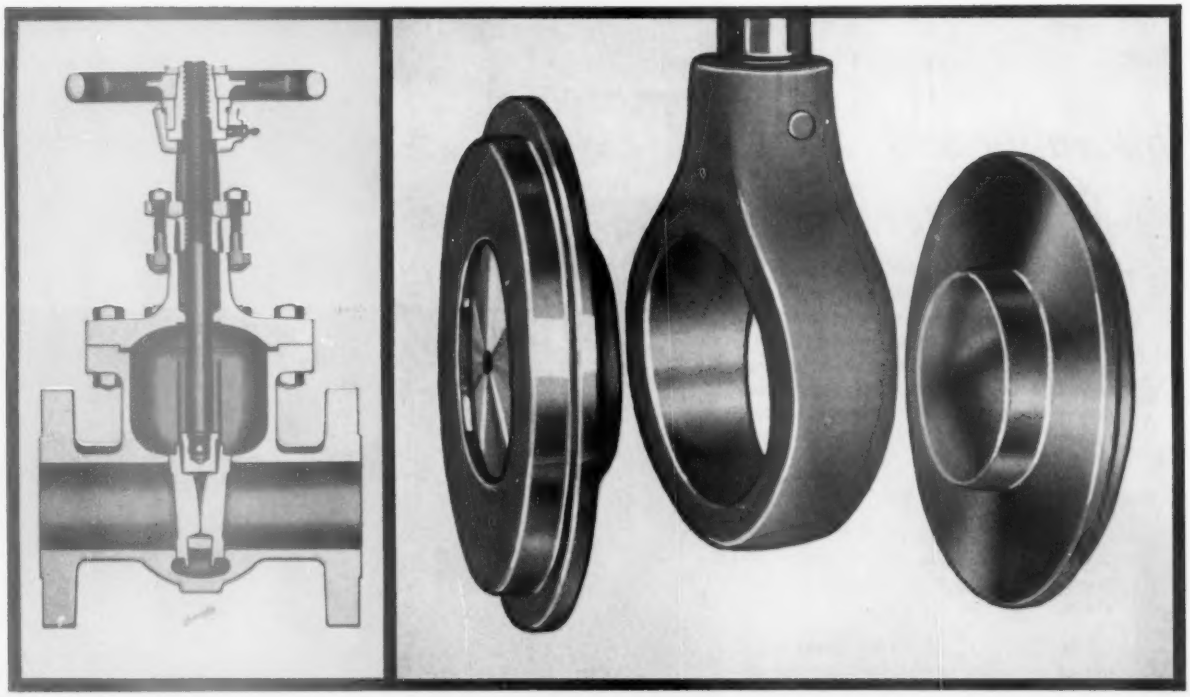
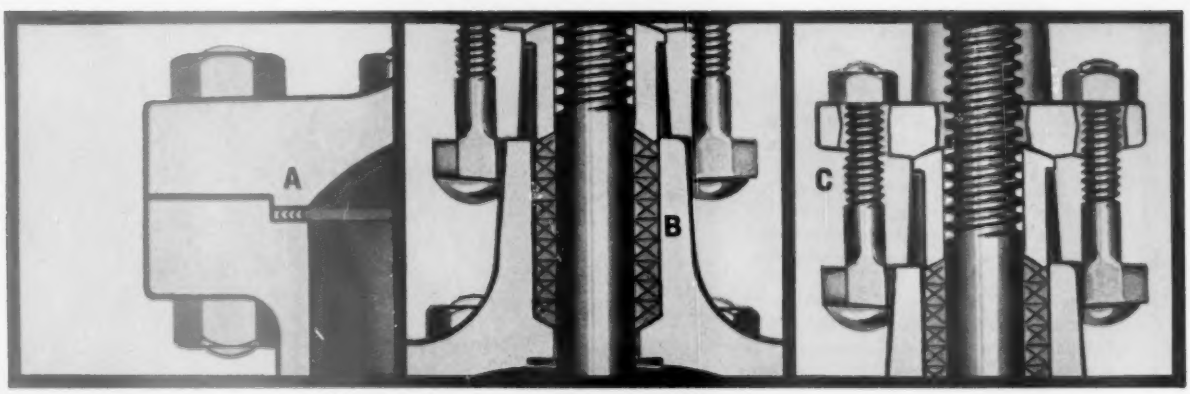


New 300 & 600-Pounders extend Crane line of stainless steel gate valves. Feature unique, free rotating, split-wedge disc.



The unique Crane split-wedge disc design features two identical disc halves, fitted back to back in a carrier that is fastened to the valve stem. The moment the lower portions of the disc halves contact the seats, the carrier exerts uniform pressure on the beveled sides of both disc trunnions, forcing the disc halves outward against the seats. This results in a perfect seal and long trouble-free valve life. Free rotation of disc halves prevents wear and galling, keeps seat faces clean.

Other quality features include **(A) Recessed, spiral wound bonnet gasket** which permits face to face abutment of body and bonnet flange. Provides predetermined gasket loading. **(B) Extra deep stuffing box** for tightness and long life. **(C) Thru stud-bolts** for easy upper valve servicing.

There's a wide choice of Crane Stainless Steel Gate Valves in 18-8 SMo or CRANELOY 20 in 150, 300 and 600 Pound Classes with screwed or flanged ends, temperatures up to 800 F. (300 & 600 Pound) . . . up to 500 F. (150 Pound).

For complete details contact your Crane Distributor. Or write to Crane Co., Dept. I, Industrial Products Group, 4100 South Kedzie Ave., Chicago 32, Illinois. In Canada: Crane Ltd., 1170 Beaver Hall Square, Montreal.

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VALVES AND PIPING
ELECTRONIC CONTROLS
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provide for increased demand by its converting customers for machine glazed specialty papers, as well as wrapping and shipping products. Thilmany currently has seven paper machines in operation (the first five were dismantled prior to 1953 because of obsolescense).

Number 13 machine, to be built by Beloit, will have a wire width of 180 inches and capacity to make m.g. papers from 6 to 60 lb. It will be vacuum pickup machine, specifically designed to produce carbonizing grades.

Startup of the Babcock & Wilcox recovery boiler and General Electric steam generator, added to the firm's present boilers and generators, will provide sufficient steam and power for the new paper machine and almost any possible requirement for converting operation expansion in the next ten years. Thilmany converting operations include supercalendering, asphalting, reinforcing, waxing, bag making, decorating and thermoplastic coating and laminating.

The new boiler, which replaces a smaller unit now on standby, was designed by B&W to handle 1,020,000 lbs. of black liquor solids/day, the equivalent rating of 390 tpd of pulp production. ■

. . . BRIEFS

Gilman modernizes No. 2 for fine papers

GILMAN, VT.—Improvements at this mill of Gilman Paper Co. have put this company in the fine paper business. No. 2 paper machine, with a trim of 152 inches, has been modernized. A complete, automated stock preparation and refining system has been added, as well as a 250,000 gallon Infilco water treatment unit.

Perkins-Goodwin Co. has been appointed exclusive sales agent for Gilman's new line of bleached fine and book printing papers, including offset, envelope and tablet grades.

More details on Ecusta's new machine

PISGAH FOREST, N.C.—The new Fourdrinier paper machine which Ecusta paper operations of Olin Mathieson Chemical Corp. plans to install, will be similar to its No. 10, the "Cherokee Arrow." The new machine will be housed in a building 50 ft. wide by 500 ft. long, containing two floors and several mezzanines immediately adjacent to No. 10 machine.

The new machine will produce paper about 160 in. wide and will operate at speeds ranging from 700 to 1,000 fpm and will boost Ecusta's capacity for cigaret, lightweight printing and one-time carbon papers.

Engineering work and design have already begun. Construction is scheduled to start in early spring of next year and should be completed by the second half of 1963.

W. F. Taylor Jr., asst. to the division vice president, is project manager and Chas. T. Main Inc. will be consulting engineers for the project.

Southern Land Timber moves into new offices

CEDAR SPRINGS, GA.—Company and contractor administrative personnel of Southern Land, Timber and Pulp Corp. moved into the newly completed office building here at Cedar Springs at the end of November. Built at a cost of more than $300,000, the 22,000 sq. ft. building will provide modern and efficient quarters for engineering, construction, purchasing and accounting as well as for key contractor supervisors and office workers of Jamison Co., Babcock & Wilcox, Inc., and Duncan Electric Co., who have received the go-ahead on major general construction of the company's kraft linerboard mill.

Southern Land's executive offices will be moved to the First National Bank Building in Atlanta.

Transit warehouse to be expanded

PORTLAND, ORE.—Waterway Terminal Co's. big transit interchange warehouse will be enlarged by a 240,000 sq. ft. addition. The terminal will have some 21 acres under one roof when this expansion is completed next May. Waterway Terminals' freight handling facilities include eight rail tracks with capacity for spotting 54 cars and bays for accommodating 66 trucks. An automatic conveyor system, will be extended to serve the new addition.

Warren dedicates new research facilities

WESTBROOK, ME.—This 107-year old company S. D. Warren, long respected by the paper industry for the number and caliber of its research achievements, has doubled its research plant here at Westbrook. Formal dedication took place on November 27.

Many credit Warren with pioneering in coated two side printing papers; wet strength map paper; cast-coated folding boxboard; pre-sensitized paper lithographic plates; release-coated converting papers; a full range of permanent book grades for publishing and commercial printing fields.

Brown Co. prepares for installation of new machine

GORHAM, N.H.—Several large projects have been completed here at Brown Co's. Cascade mill in preparation for installation of the new 101 in. tissue machine being built by The Black-Clawson Co.

Projects completed include installation of a new oil-fired package boiler to provide additional steam required by the new machine. The new unit went into operation early in October and will increase generating capacity by 25%.

Customer service improved by electronic data processing

SOUTH GATE, CALIF.—Fibreboard Paper Products Corp. has installed an electronic data processing system at its container plant here.

Jack L. Davies, gen. mgr. of Southern California Packaging Division, says this makes for "superior customer service through streamlined and advanced production control." He adds, "We gain more effective and balanced utilization of all our manufacturing facilities and the fullest possible control of the orders of each of our customers.

"This has been made possible through daily analysis of forecast data generated by equipment that shows actual production requirements for several weeks hence."

Whippany common stock listed on American Stock Exchange

NEW YORK—This new Jersey firm, Whippany Paper Board Co., began trading its 740,000 shares of common stock on the Exchange on October 5. An interesting sidelight to the announcement is that a large portion of Whippany's pulping furnish, secondary fiber, is obtained directly from the wastebaskets of the ASE and hundreds of office buildings here in New York City.

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To find the right valve for pulp and paper services, just call Powell. It's that simple, since Powell offers a wide selection of valve designs and industry's most complete selection of materials including bronze, iron, steel, stainless, nickel, Monel Metal*, Hastelloy**, and Ni-resist*.

What's more, you don't have to wonder about Powell performance. It's built-in through sound engineering, development, materials and workmanship.

So, remember, finding the right valve can be a simple matter when you specify Powell Valves. For further information, call your nearby Powell Valve Distributor (there's one in every major city), or write The Wm. Powell Company.

*Registered tradename of the International Nickel Company.

**Registered tradename of Haynes Stellite Company

150-pound Steel Gate Valve—Fig. 1503. Bolted flanged bonnet, outside screw rising stem. Sizes, ¼" through 30". Screwed end and welding end valves can be furnished. Valves for pressures from 150 through 2500 pounds are available.

150-pound Stainless Steel "Y" Valve—Fig. 1944. Bolted flanged yoke-bonnet. Outside screw rising stem. Face to face dimensions are in accordance with MSS SP-42 Standard. Sizes, ¼" through 8".

200-pound W.O.G. Alloy Cast Iron Paper Mill Service Gate Valve—Fig. 1893. Body and bonnet are cast 3½% nickel-iron. Stem and renewable seat rings are Type 316 Stainless Steel. Guided solid wedge is Ni-resist. Sizes, 2" through 30".

Refer to our catalog in Chemical Engineering Catalog

115th year of manufacturing industrial valves for the free world

POWELL PAPER MILL VALVES

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Safety records are breaking all over

New contenders are Buckeye, Eastex, U.S. Gypsum and CZ's St. Helens

NEW YORK—Buckeye Cellulose Corp., world safety champion in the pulp and paper industry, is extending its lead of injury-free performance past the seven million consecutive man-hour mark. Plant Manager Louis A. Hiett estimates that in the current period of safe operations, which began almost six years ago, some 66 employes have been saved from disabling injury. This, he explained, is the number of lost-time accidents that would normally have occurred if the plant had been operating at the injury average.

A record of over 3 million disabling injury-free man hours has earned for United States Gypsum Co's. South Gate, Calif., plant the Edward Benton Fritz Memorial Trophy. This is the third time the company has won the award, which is donated by Fritz publications (The Paper Industry).

Still rolling past one million accident-free mark is the Evadale, Texas, mill of East Texas Pulp and Paper Co., which has worked a total of 1,396,524 hours without a lost-time accident. Two outstanding awards have been presented to the company within past weeks. The Royal-Globe Insurance Group presented Eastex President R. M. Buckley with a plaque and the American Paper & Pulp Assn. safety award was given to G. L. Magee, Eastex safety coordinator, by James E. Jones, APPA director of industrial relations.

This is the second time that Eastex has achieved better than one million hours without a disabling injury. The best previous record was 1,101,968 from Oct. 18, 1959 to Aug. 10, 1960. Each time the safety record exceeds the one million manhours mark, the company has given a ham to each employe.

First million manhours worked without a lost-time injury was marked by the 700 employes of Crown Zellerbach's St. Helens pulp and paper division at St. Helens, Ore. The precedent-shattering string of accident-free days started last March 4. The best previous safety record in the history of this 35-year-old mill was 814,082 manhours in 1955. Resident Manager Howard C. Hall credited the achievement to the "safety-minded attitude of each employe." ■

Winder Accidents

For additional safety news, on how an APPA-appointed task force is working to reduce winder injuries, see "Supervision Methods" article on page 61 of this issue.

After studying the types of winder injuries in paper mills, this task force has come up with recommendations for three barrier guard designs that can be adapted to existing and to new equipment. Several machinery builders are members of the task force and they are cooperating with the study group in designing these barriers so that they will be compatible with their equipment.

Canadian meeting to highlight new trends

MONTREAL—Another annual meeting of the Canadian Pulp & Paper Assn., which probably will draw close to 2,000 leading management and technical men from a dozen or more nations, is to be held in Montreal, Jan. 23-27.

Lucien C. Rolland, elected new chairman of CPPA and president of Rolland Paper Co., will be No. 1 man at this conclave, one of the most important of the year in the industry in any country.

A widely repeated comment is that over the years the really new technical developments in papermaking or pulp manufacturing are often introduced in Montreal. The record seems to support this—the Curlator, the Deculator, the Centri-Cleaners, the Magnefite process, chlorine dioxide bleaching and many other original processes have been announced at the meetings.

Robert M. Fowler, president of CPPA and of the Canadian Newsprint Assn., whose thoughtful analysis of the corroding Canadian-American business relations a year ago was an event which sent many delegates home seriously thinking over this problem for months, will again be the spokesman of the Canadian industry at the annual luncheon on Friday, Jan. 27.

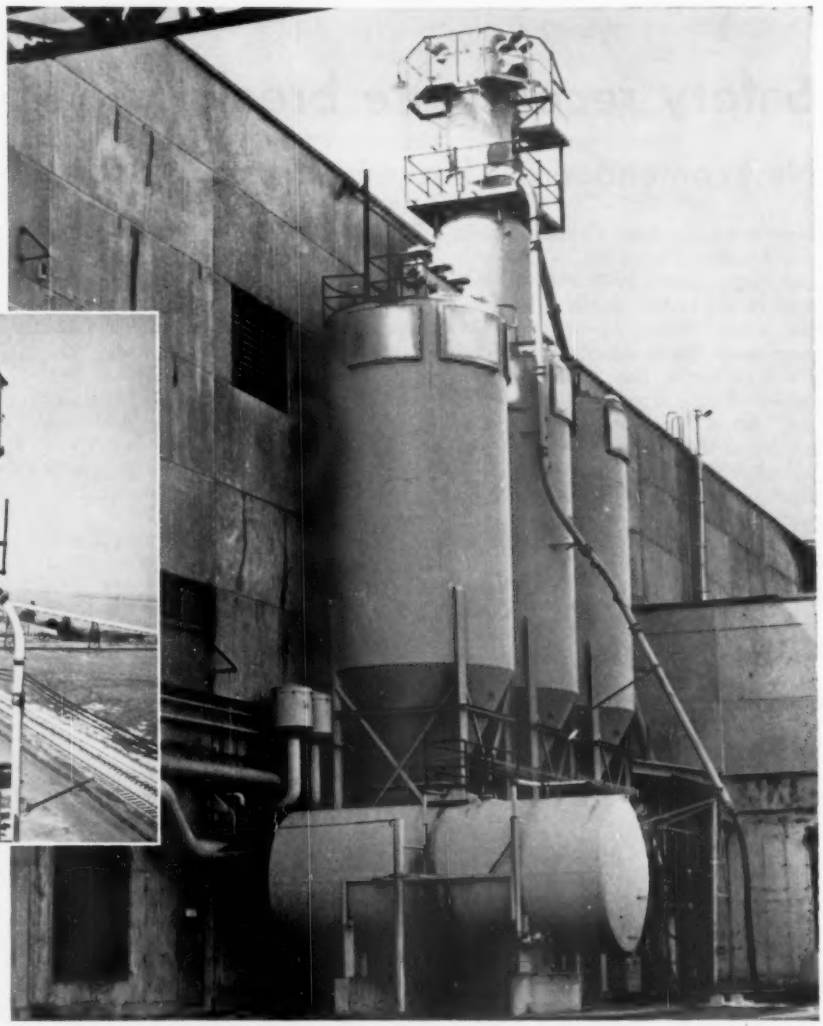
E. L. Neal, president and general manager of Gaspesia Sulphite Co., is chairman of the Technical Section which has its luncheon meeting on Jan. 26.

The technical papers in Montreal, all to be given in the "Queen E"—the Queen Elizabeth hotel—include: effluent control at the new Celgar pulp mill, a microscreening installation at Thurso, waste disposal at Kimberly-Clark's Terrace Bay mill, high velocity drying, operating difficulties with the new coaters, continuous Magnefite pulping, operating mill problems. In addition, nine panel discussion periods will be held. These should be highlights of the meeting and will be on the subjects of corrugated containers, pneumatic materials-handling, motor controls, breaker stacks, wire life, kraft digester overlaying, roll wrapping, corrosion in general, and high velocity drying.

Head man at Montreal rendezvous—LUCIEN C. ROLLAND

Registration for the Technical Section opens at the Queen E. at 9 a.m. Jan. 23. Many of the top industry meetings are in other hotels and are closed meetings. ■

Overall view shows conveying line running in front of storage tanks to Airveyor filter at top.



Pneumatic Conveying System Handles Both Corn And Potato Starch At Crown Zellerbach Plant

Economy, versatility and provision for future expansion are main features of system by Fuller. Bulk handling of starch from hopper-car to storage silos is being accomplished with a Fuller Airveyor® pneumatic system at Crown Zellerbach's Antioch, California, plant.

Starch shipments arrive at the plant by rail. A Fuller dual-feed unloader is quickly positioned to transfer the starch through the 6 inch diameter system a distance of 100 feet to storage at a maximum rate of 14 tons per hour.

Delivery is to three tank silos—one for potato starch—through a Fuller Airveyor Filter.

While the system was planned for corn starch handling only, its ability to handle potato starch as easily has proved a bonus value. Original planning also provided for a system capable of handling future plant expansion requirements without alteration or expansion of the Airveyor system.

If your plant is currently handling fine dry materials in bags, check with Fuller. Our engineers may be able to recommend an appropriate system that will offer results similar to those gained by Crown Zellerbach. 4075 A 288

See Chemical Engineering Catalog for further details and specifications.

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Skid piler

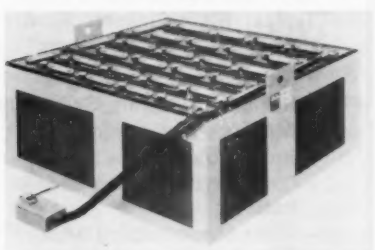
. . . has patented principle

Applications: To meet needs of one minute stacking cycles.
Advantages: The patented bi-parting mechanism near the top surface of the "Stackmastre" skid piler is an extremely thin air plate. Bi-parting surfaces, withdrawn independently and in succession, lower the lift directly onto the skid below. The resulting stack of lifts on the skid is perfectly aligned because each lift is deposited one-half at a time by sequential operation of the plate. When the lift is deposited, an elevator lowers automatically to a pre-determined level, and the bi-parting surfaces automatically close, completing the cycle.

The stacker was invented by Fritz Curtenius, vice president of Kalamazoo Paper Co. The supplier is producing it in two models under license from the company. One model has a through-the-floor elevator, and the other operates at floor level.
Supplier: **The Smith & Winchester Mfg. Co., South Windham, Conn.**

Storage batteries

. . . with greater capacities



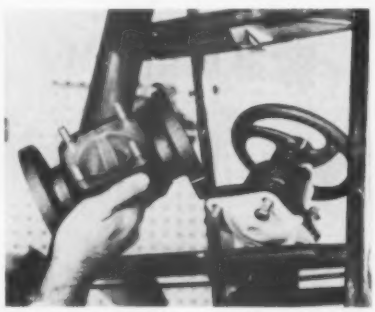
Applications: For more versatile and efficient use of electric industrial trucks with up to 8,000 lb. lifting capacities.
Advantages: The supplier says electrical capacities of its nickel-iron alkaline storage batteries have been increased to nearly 77% of capacity. Redesigned to make more efficient use of plate space, these batteries are capable of producing 100-ampere-hours per positive plate (Now, they are producing 1.202 watt-hours per cu. in.)

Greater battery capacity, the supplier says, will enable small trucks to work in narrow aisle spaces with heavier loads, and allow them to use more power attachments. Longer battery life and interchangeability with other batteries will mean fewer batteries used, the supplier states.

Batteries in the new "E" line are 22⅝ in. high and will fit standard truck battery compartments. AH capacities are 400 to 800.
Supplier: **Exide Industrial Marketing Div., Electric Storage Battery Co., Rising Sun and Adams Ave., Philadelphia 20, Pa.**

Diaphragm valve

. . . is plastic-lined



Applications: For handling corrosive fluids above 300 F.
Advantages: Recently on display at the Chemical Industries Exposition in Chicago, this piping is lined with a new thermoplastic for use in temperatures from minus 320 to 390 F. Key features stated by the supplier are: zero moisture absorption, electrical non-conductivity, non-flammable and chemical inertness. It can be used for piping fuming nitric acid.
Supplier: **Tube Turns Plastics Inc., Louisville 1, Ky.**

Metering valve

. . . for low flow ranges

Applications: For laboratory work or other applications requiring minimum dead space and maximum flow control.
Advantages: Tube fitting connections are provided for 1/16 in. O.D. tubing. Flow control is in the 0 to 50 cc/min. air flow range; dead space is 0.002 cu. in.; orifice size is 0.030. Low flow adjustments are possible because of 56 pitch thread. Valve stems are 316 stainless steel. Set screw locking feature on knurled handle permits locking at any position. Available in straight or angle patterns.
Supplier: **Nuclear Products Co., 15635 Saranac Rd., Cleveland 10, Ohio.**

Crawler tractor

. . . has ground speed control

Applications: Has 72 hp capabilities.
Advantages: The new HD-6EP crawler tractor features power shifting and torque converter drive. An additional feature, ground speed control, is exclusive on this size unit, the supplier says. It enables the operator to preset any working travel speed to match job conditions.

High speed work cycles are more efficient than in previous models of this type, the supplier says, because there is no surge of speed when load is lightened, nor slowdown when load is increased. The supplier claims this feature to be the closest approach to automatic control in a conventional crawler tractor.

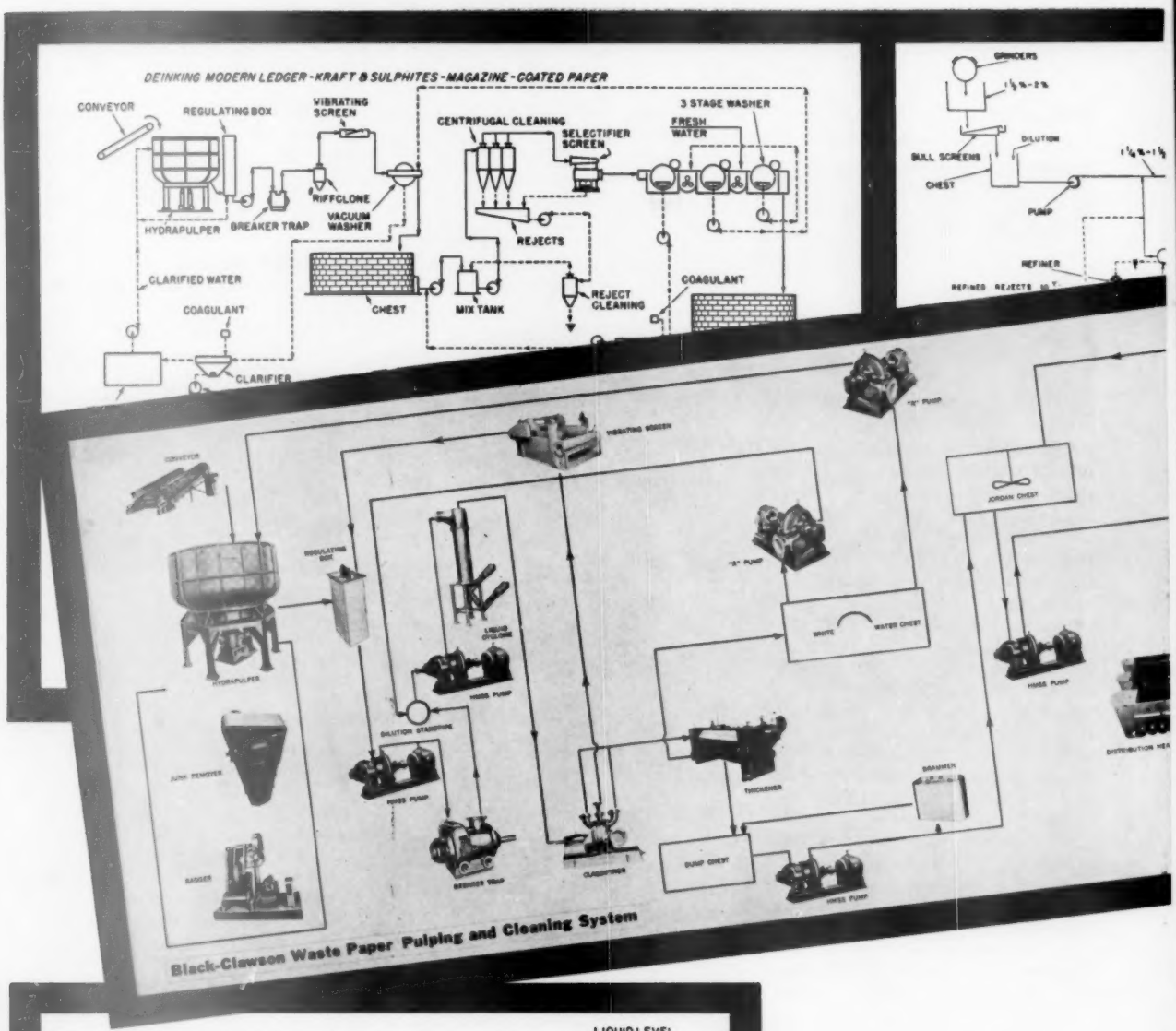
One-hand power shifting includes two forward speed ranges up to 5.9 mph, and two reverse speed ranges—up to 4.2 mph. Torque multiplication is 5.1.
Supplier: **Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wis.**

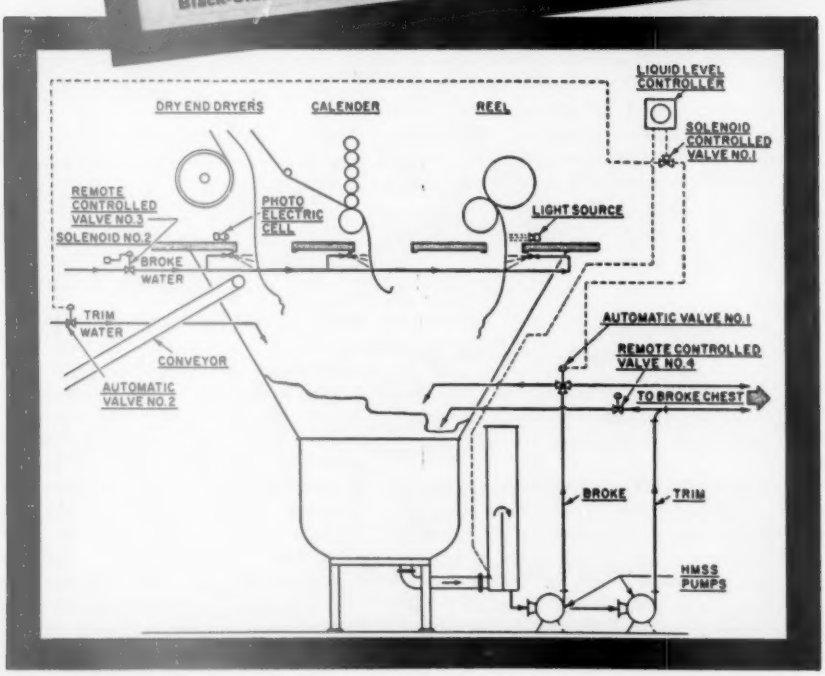
Conveyor belt

. . . has design departure

Applications: For various conveying needs.
Advantages: The supplier says its new design is departure from interwoven weave ordinarily used in belt construction. Fabric in the "UsFlex" belting is woven in a straight plane; warp and fill are locked in place by specially-designed, high tension binders. Straight crossribs are said to give transverse rigidity to prevent spillage and allow easy flexing around pulleys.

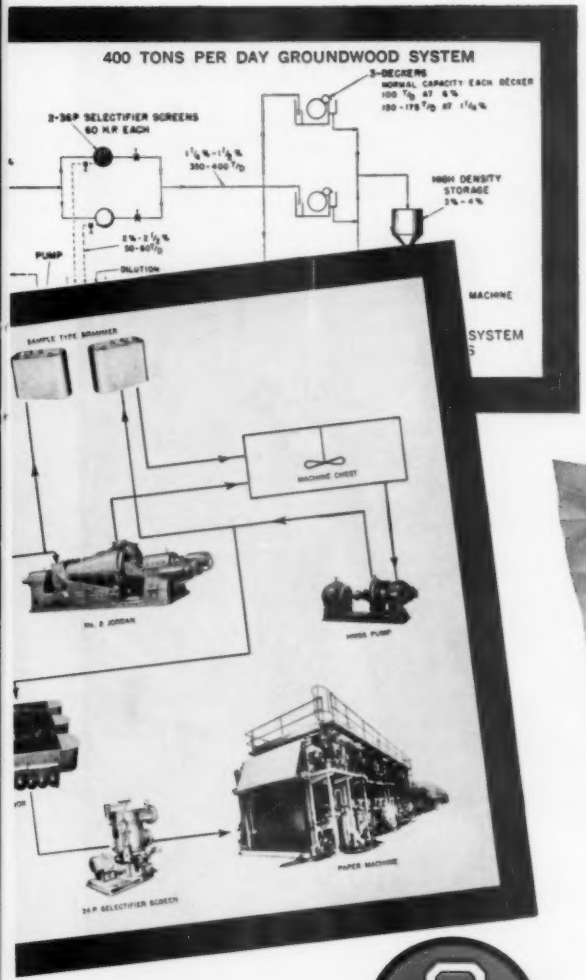
It is claimed that the belt is stronger than conventionally designed belts—although only half . . . **turn to p. 76**

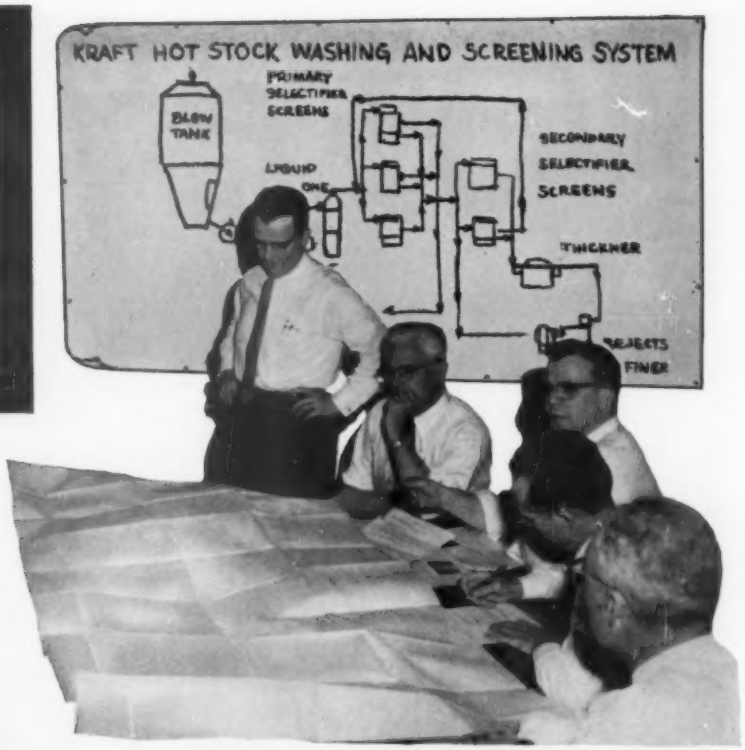




Typical Black-Clawson Shartle Division "Package Systems"

- Groundwood Screening
- Hot Stock Cleaning-Screening
- Waste Paper Cleaning
- Broke Pulping
- Clean Stock Pulping and Refining
- Filler Stock Pulping and Cleaning
- De-inking and Cleaning
- Plastic Coated Fiber Reclamation





R. F. Vokes, V.P., General Manager, Shartle Division, standing, discusses plans for an integrated stock preparation system for a new paperboard mill with, left to right, D. G. Sutherland, Manager, New Products Sales Development; H. P. Espenmiller, Director of Laboratories; J. E. Hartford, V.P., General Manager, Paper Machine Division and E. M. Root, Shartle General Sales Manager.

HOW THE "PACKAGE SYSTEM" CONCEPT

Can Lower Your Pulp and Paper Mill Stock Preparation Costs

Black-Clawson, a competent single source for engineering and building integrated stock preparation systems, offers these services in a "package":

- initial appraisal, consultation, recommendations
- planning and selection of the best combination of machines and components
- engineering and manufacturing of all equipment
- installation, start-up and service requirements

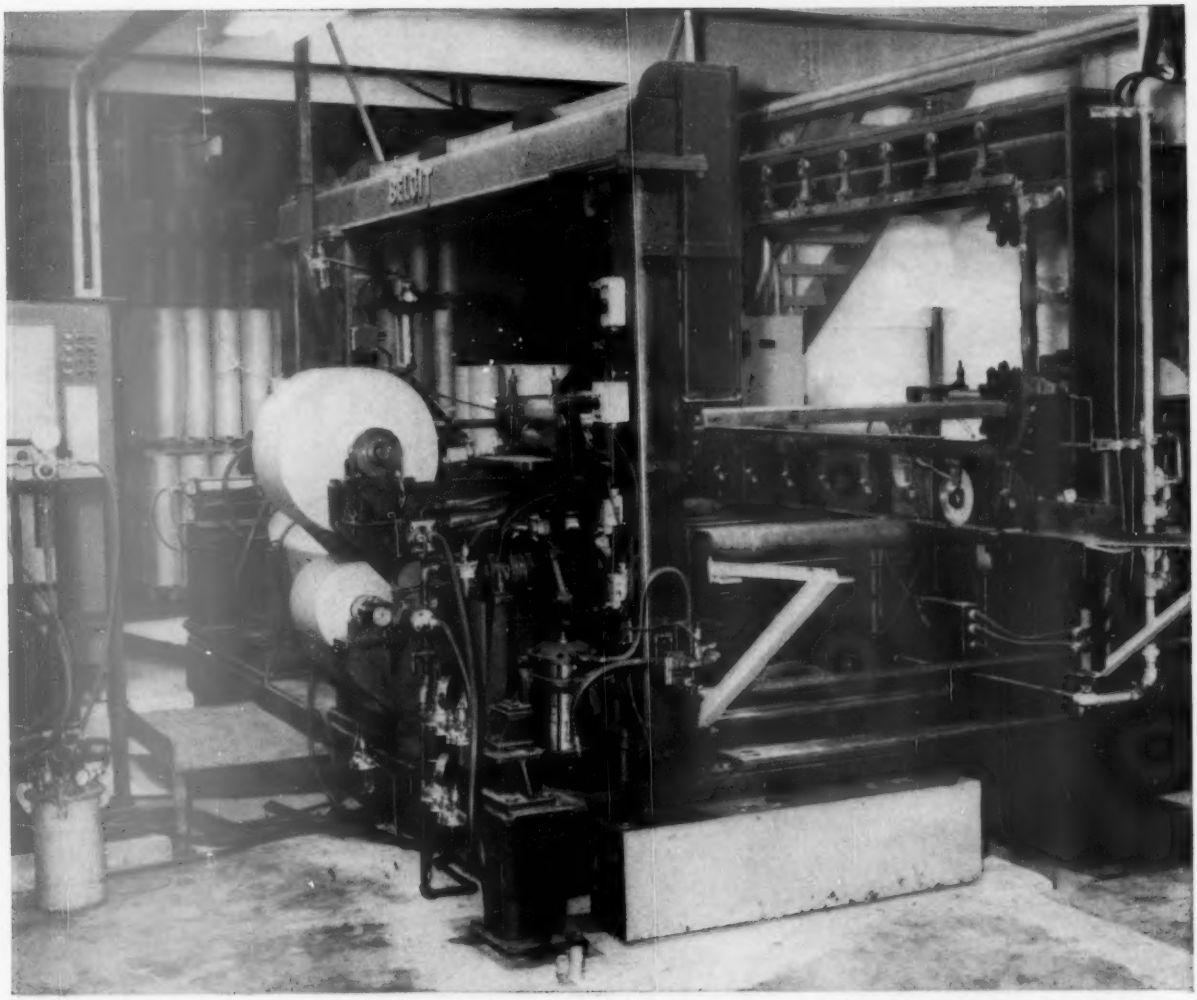
You Save Time and Money With:

- One contract
- Single point of contact and liaison
- Coordinated manufacture and shipment
- Smooth start-up . . . all equipment designed to function as an integrated unit
- Undivided responsibility with one engineering and manufacturing source

Capitalize on Black-Clawson's ability to provide coordinated one package systems for better economy and efficiency. Contact the Shartle Division for full details.

SHARTLE DIVISION
Middletown, Ohio
COMPLETE STOCK PREPARATION SYSTEMS

BLACK-CLAWSON



S. R. CHRISTENSEN

International Paper Co., Mobile, Alabama

Beloit counter roll wrapper

Compact, well-engineered unit puts counter roll wrapping on a completely automatic basis. A Beloit counter roll wrapper can be arranged to handle counter rolls of any size. Consider these important features:

• plugs, wraps, crimps and glues automatically • wrapper sheets automatically cut from a single parent roll • end covers die cut and applied from a single parent roll • neat, uniform customer rolls • reject arrangement for nonstandard rolls • speed range of ten rolls per minute

FINISHED PRODUCT PROCESSING EQUIPMENT

Winders • Reclaim Winders • Cutters
Sheeters • Slitters • Supercalenders
Roll Wrappers • Roll Lowering Tables
Roll and Shaft Handling Equipment
Conveyors • Unwind Stands and
Tru-Tension Controls • and other
equipment for the paper and
allied industries.

BELOIT EASTERN PAPER MACHINERY DOWNINGTOWN, PENN.

Member Beloit Group

BELOIT EASTERN CORPORATION

DOWNINGTOWN, PENNSYLVANIA

K-C Canada reorganizes top echelon

TORONTO—Expansion and continuing diversification of Kimberly-Clark Canada, Ltd., with major mills at Kapuskasing and Terrace Bay, Ontario, has led to an administrative reorganization of top executive personnel.

F. S. Seaborne, pres., says that the new lineup will provide the organization with greater scope for growth in the manufacture of pulp, paper and cellucutton products.

G. M. Minard and J. M. Cameron have been elected senior vice presidents in charge of the newly created industrial and consumer divisions. G. L. Carruthers, for years prominently identified with the subsidiary Interlake Tissue Mills, Ltd., has been elected vice pres., Kimberly-Clark Canada. G. G. Cosens becomes vice pres., and director, Spruce Falls Power & Paper Co. another subsidiary, while continuing as vice pres. and gen. mgr., woodlands dept., Kimberly-Clark Pulp & Paper Co.

In his new office Mr. Minard is responsible for operations and sales of pulp and newsprint. Mr. Cameron is responsible for operations and sales of facial tissues, sanitary papers and similar products manufactured by K-C Canada and Interlake. ■

Ashby directs operations from B.C.

VANCOUVER—John Ashby, executive vice pres., Westminster Paper Co., Ltd., is home again in British Columbia after four years in Quebec where he directed the integration of the Crabtree Mills operations with those of the company's West Coast mill.

From Westminster's head office in New Westminster, B.C., Mr. Ashby will continue to call the signals from the executive level for both mills. C. N. Hager, plant mgr., Crabtree Mills division, will report direct to him from the East; Horace F. Winchell, plant mgr., New Westminster, from home base.

Urbane, pipe-smoking John Ashby has spent all but one of his 27 years in the industry with one company. After graduating from the University of B.C., he went direct to the old B.C. Pulp & Paper Co., now Rayonier Canada Ltd., but a year later, in 1935, he joined Westminster Paper Co., the consistently successful tissue and paper specialty mill organized by the late J. J. Herb and headed for many years, until his death in 1958, by his son Elmer M. Herb.

Mr. Ashby's first job with Westminster was as plant chemist, but in the early 1940's he became plant mgr., later vice pres., manufacturing, and in 1958 exec vice pres., continuing in that capacity since Scott Paper Co. acquired a large interest in the company, with A. F. Armstrong, president and managing director.

When the company acquired Crabtree Mills from Howard Smith Paper Mills, Mr. Ashby was the logical choice to move to Quebec, temporarily, to see that operations of the two divisions meshed successfully. Mission accomplished, he is back in his old home town, but he will continue to be a familiar figure at Crabtree Mills and in Montreal industry. ■

ASHBY

Weyerhaeuser Smiths now two; other changes

NEW YORK—Weyerhaeuser Co.'s Pulp & Paperboard Division announces appointment of Horace L. Smith III as pulp sales district representative in the East, with headquarters at 230 Park Ave., New York. He will report to Spencer M. Smith, manager, pulp sales. Mr. Smith is on a tour of duty at West Coast mills of Weyerhaeuser.

Mr. Smith had been with Standard Paper Mfg. Co. of Richmond, Va., for eight years, recently as a sales executive. He is a native of Richmond, a graduate of Washington and Lee University in business administration, and was an officer in World War II and again in the Korean War.

His father, Horace L. Smith, Jr., is a distinguished consulting engineer for paper and other industries and is president of the Smitherm Division of Hupp Corp. He invented the Smitherm drying process.

DAYTON, O.—John C. Tuck, vice president, is new general sales manager, Mead Papers Inc., announces H. Warren Kampf, president, Mead Papers. Mr. Tuck, a California and Stanford graduate, was manager of the Dayton sales office, where he is succeeded by John W. Herbert.

MONTREAL, QUE.—Charles A. Newman becomes division manager of Ontario Paper Co. and is succeeded as division manager at Quebec North Shore Paper Co. by Thomas G. Rust, formerly supt. there. Romeo Comette, succeeded by Mr. Newman, is now assistant vice pres., mfg., Ontario Paper. S. J. Simons is new woodland mgr., Quebec North Shore. With the company since 1943, he succeeds T. B. Fraser.

Haselow named president of Gilbert

DAYTON, OHIO—Arthur C. Haselow, who has been serving as general manager of Gilbert Paper Co., Menasha, Wis., since the sudden death of T. M. Gilbert Sept. 17, has been elected president. At the same time the board of directors elected John D. Schmerein vice president.

The 74-year-old . . . turn to p. 84

SCAPA DRYER FELTS

FIRST TO LAST

Famous Paper Mills of the World Serviced by SCAPA

BOWATER'S NEWFOUNDLAND PULP AND PAPER MILLS LTD.

Corner Brook, Newfoundland

FM-8

SCAPA DRYERS, INC. WAYCROSS GEORGIA •

SELLING AGENTS

Morey Paper Mill Supply Company
309 SOUTH STREET, FITCHBURG, MASS.

John B. Chandler Co.
P.O. BOX 1748, ATLANTIC BEACH, FLA.

Tipka Supply Company
413 JACKSON ST., OREGON CITY, ORE.

MEETINGS

. . . January

Metropolitan TAPPI, "Newsprint from de-inked fiber," Stouffer's, New York, N. Y.—Jan. 9.

Connecticut Valley PIMA, Publick House, Sturbridge, Mass.—Jan. 11.

Gulf Coast TAPPI, Stafford Hotel, Tuscaloosa, Ala.—Jan 12-13.

Pacific TAPPI, Engineering Conference, Bellingham, Wash.—Jan. 16.

Miami Valley Div., PIMA, joint meeting with Graphic Arts Assn., Carrousel Motel, Cincinnati, Ohio—Jan. 18.

Michigan Div., PIMA-TAPPI, annual papermakers get-together, Hotel Harris, Kalamazoo, Mich.—Jan. 18.

Miami Valley PIMA—Jan. 23.

Canadian Pulp and Paper Assn., technical section, annual meeting, Queen Elizabeth Hotel, Montreal—Jan. 23-26.

. . . February

Empire State Section TAPPI, Plastics in the Paper Industry, Crown & Anchor Restaurant, Niagara Falls, N. Y.—Feb. 7.

Paper Week: TAPPI, Commodore Hotel; **APPA,** Waldorf Hotel; **APA,** Roosevelt Hotel, New York—Feb. 18-22.

. . . March

Empire State Section TAPPI, Stream Pollution, Crown & Anchor Restaurant, Niagara Falls, N. Y.—Mar. 7.

Metropolitan TAPPI, "Problems for research," Stouffer's New York, N. Y.—Mar. 13.

Michigan Div., PIMA, Inman's Restaurant, Galesburg, Mich.—Mar. 15.

Pacific TAPPI, Shibley Award meeting, Camas, Wash.—Mar. 20.

Virginia-Carolina TAPPI, John Marshall Hotel, Richmond, Va.—Mar. 23.

Gulf Coast TAPPI, San Carlos Hotel, Pensacola, Fla.—Mar. 23-24.

Miami Valley Div., PIMA, Manchester Hotel, Middletown, Ohio—Mar. 27.

. . . April

Empire State Section TAPPI, Crown & Anchor Restaurant, Niagara Falls, N. Y.—Apr. 4.

Metropolitan TAPPI, "Reclaimed fiber," Stouffer's, New York, N. Y.—Apr. 10.

Miami Valley Div., PIMA, Manchester Hotel, Middletown, Ohio—Apr. 24.

Pacific Coast branch, Technical Section, Canadian Pulp & Paper Assn., annual spring meeting, Harrison Hot Springs, B. C.—Apr. 25-29.

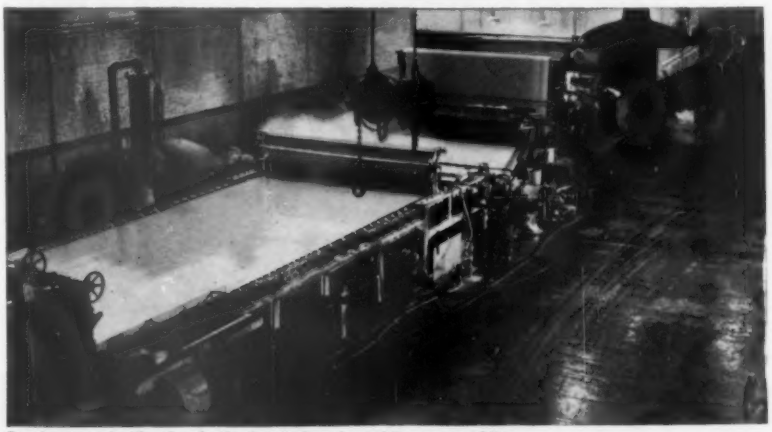
. . . May

TAPPI, 13th Coating Conference, Netherland-Hilton Hotel, Cincinnati, Ohio —May 14-16.

. . . June

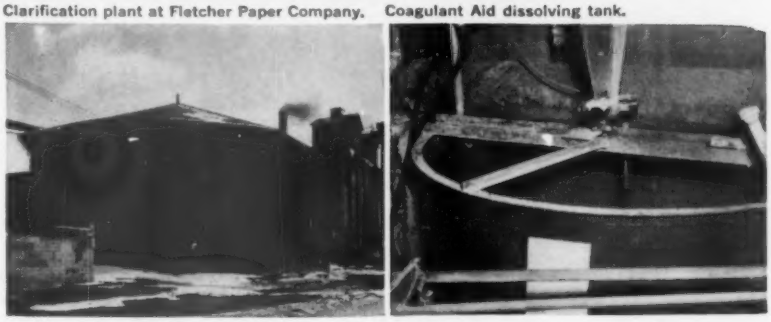
PIMA, National Meeting, Statler Hilton Hotel, Buffalo, N. Y.—June 5-7.

HAGAN COAGULANT AIDS
give Fletcher Paper Company clear water without filters



Good water clarification is the key to keeping white paper white.

Clarification plant at Fletcher Paper Company. Coagulant Aid dissolving tank.



Quick Case History—reading time 62 seconds

THE PLANT: Fletcher Paper Company, Alpena, Michigan, clarifies Thunder Bay River water in an upflow unit. Without filters, poor turbidity removal or floc carryover adversely affects paper quality and cannot be tolerated.

THE PROBLEM: The plant had been using alum and activated silica. Results were not uniformly satisfactory. There was carryover of floc and suspended matter to the clear well. Pump and line maintenance costs were high.

THE SOLUTION: A combination of Hagan Coagulant Aids has solved the problem. Easy to feed (this plant is using the slurry method) Hagan Aids are producing a larger, tougher floc that settles fast. Clarification is more complete and paper production is no longer handicapped by poor water quality.

RESULTS: Regardless of raw water changes, water quality in the plant is good. Carryover of floc and suspended matter has ceased, in fact, one can tell whether a dime at the bottom of the 8-foot deep clear well is heads or tails. Since Hagan Coagulant Aids are in use, maintenance costs have returned to normal. Best of all, chemical treatment cost has been cut by nearly 50%.

WANT MORE INFORMATION on how your operation might benefit from the use of Hagan Coagulant Aids? A letter or phone call will bring complete information.

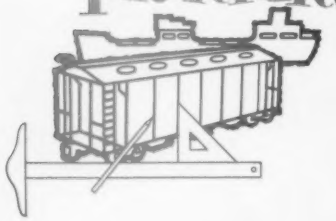
Ask for Bulletin HSP-919.

HAGAN
CHEMICALS & CONTROLS, INC.
HAGAN CENTER, PITTSBURGH 30, PA.

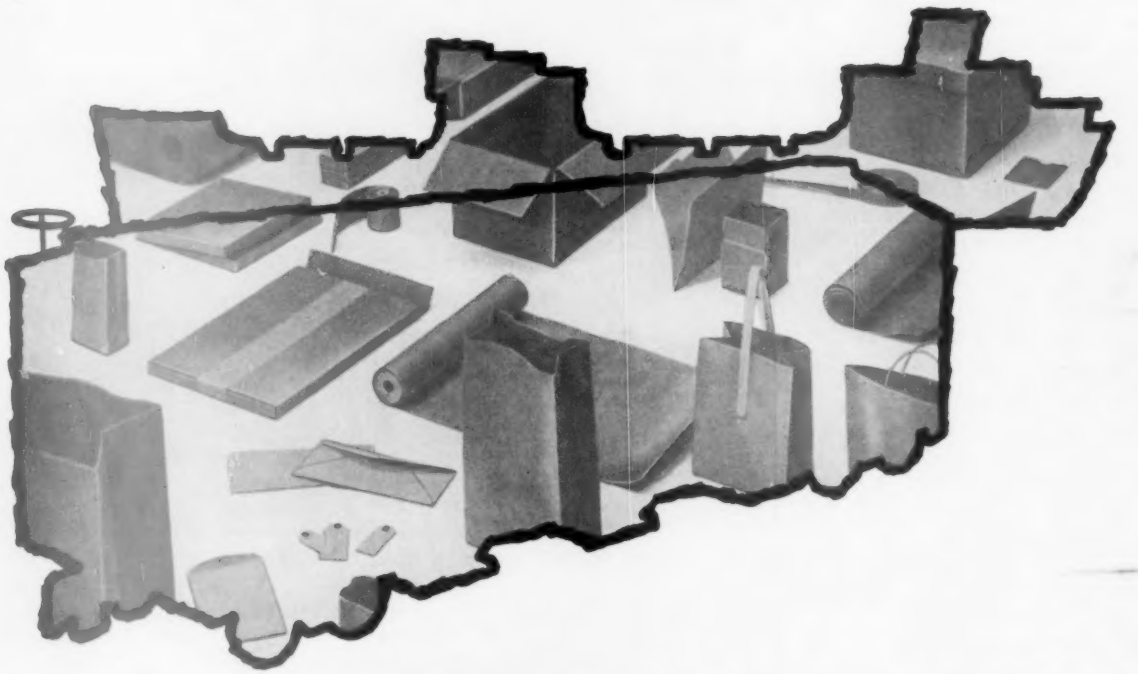
HAGAN DIVISIONS: CALGON CO.—HALL LABORATORIES—BRUNER CORP.

WEST END

advance planning



OF ECONOMICAL SALT CAKE TRANSPORT ANTICIPATES INDUSTRY'S GROWING NEEDS

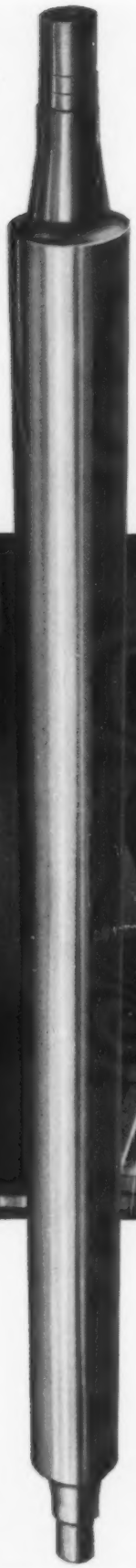


WEST END program of utilizing economical water transport and new Jumbo hopper cars with 60% additional capacity enables West End to move salt cake at great distances economically. With a vast natural raw material supply and large, expanding production capacity, West End is solidly qualified as a major supplier to handle the complete requirements of its customers dependably, economically and efficiently within a wide geographical area.

Stauffer CHEMICALS

WEST END CHEMICAL COMPANY • DIVISION OF STAUFFER CHEMICAL COMPANY

636 CALIFORNIA STREET, SAN FRANCISCO, CALIFORNIA • PLANT: WESTEND, CALIFORNIA

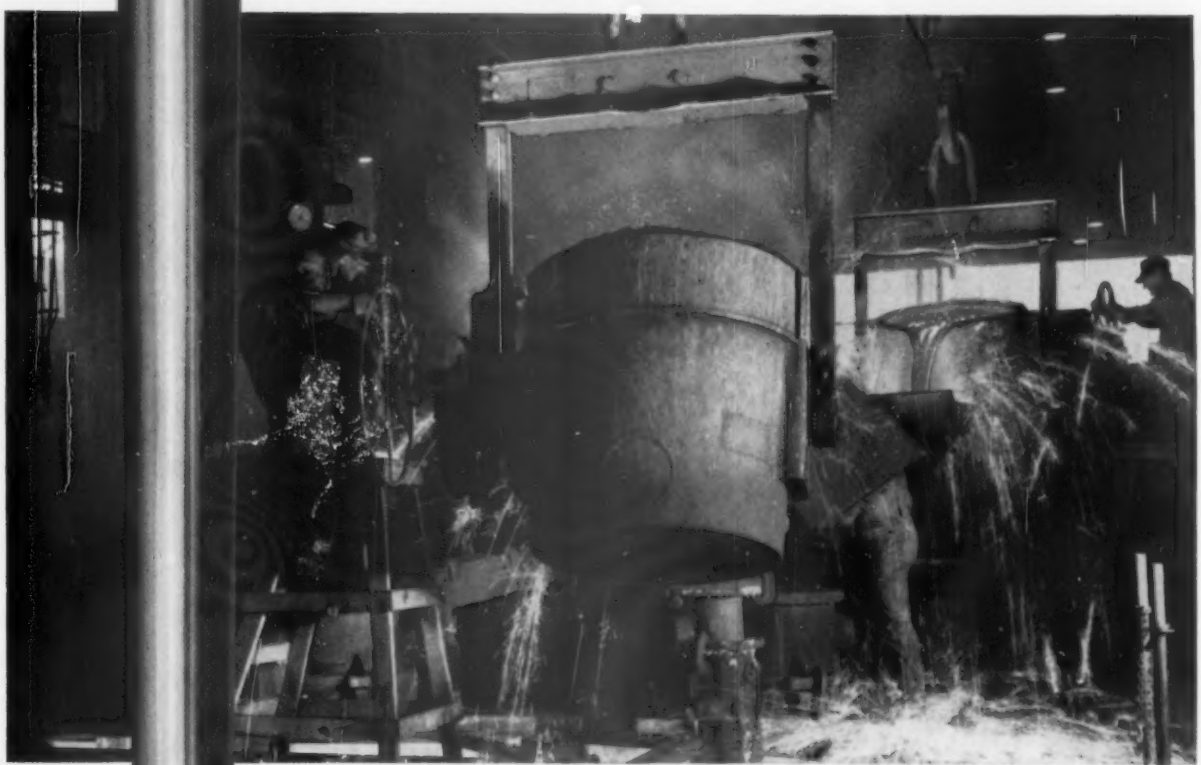


UNITED®

CHILLED IRON AND ALLOY CHILLED IRON

ROLLS

FOR PAPER AND ALLIED INDUSTRIES



- CHILLED IRON ROLLS
- MACHINE CALENDER STACKS
- ROLL GRINDING MACHINES
- ROLL CALIPERS
- KNIFE GRINDERS

UNITED FURNISHES THE LONGEST AND HEAVIEST ROLLS required by the paper industry. United Chilled Iron Rolls for machine calendering give longer service; are uniformly hard and highly resistant to abrasion and deformation. For water finish or high pressure stocks, United rolls of special alloys are available.

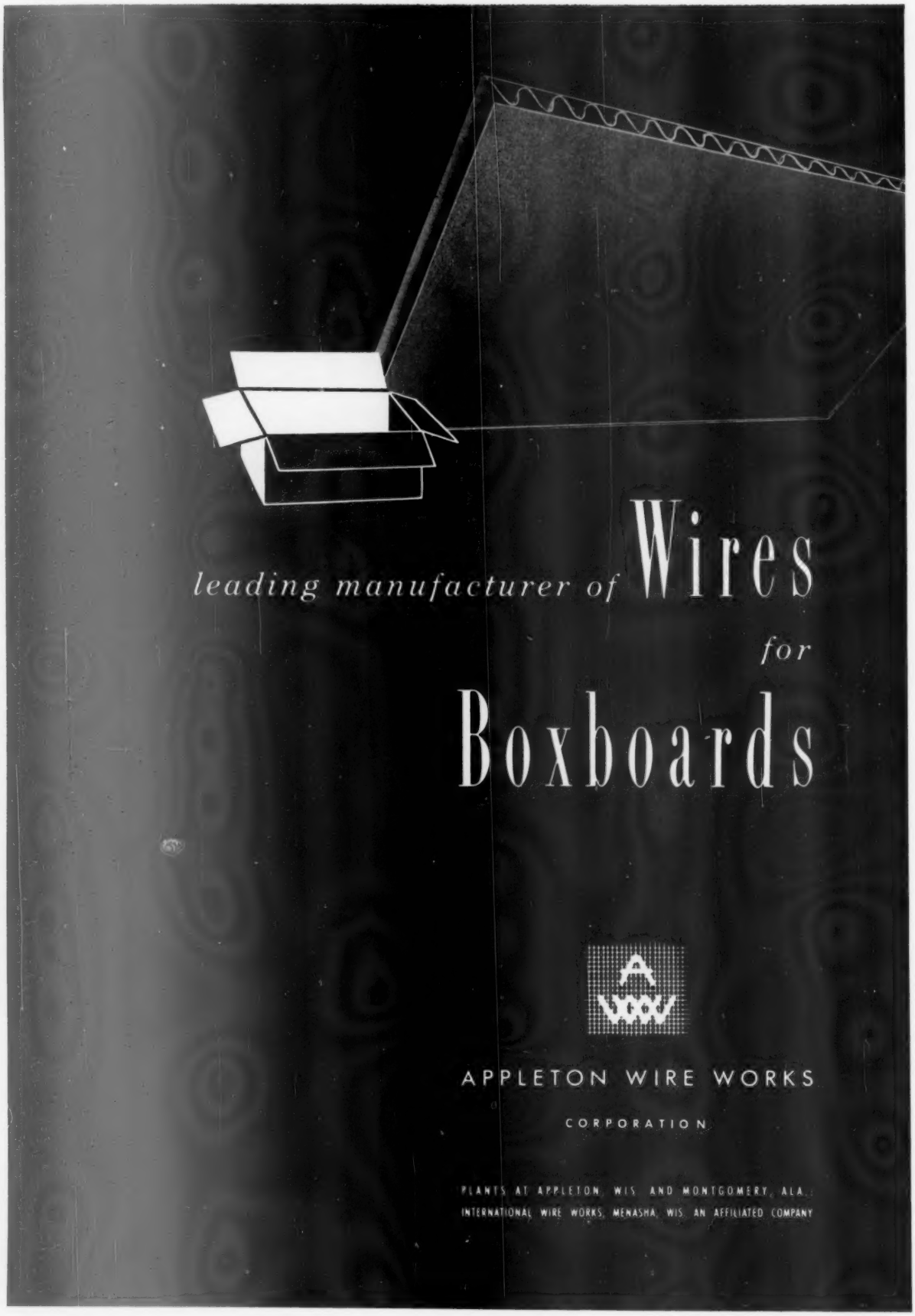
1901 UNITED 1961

Progress... Leadership United for Sixty Years

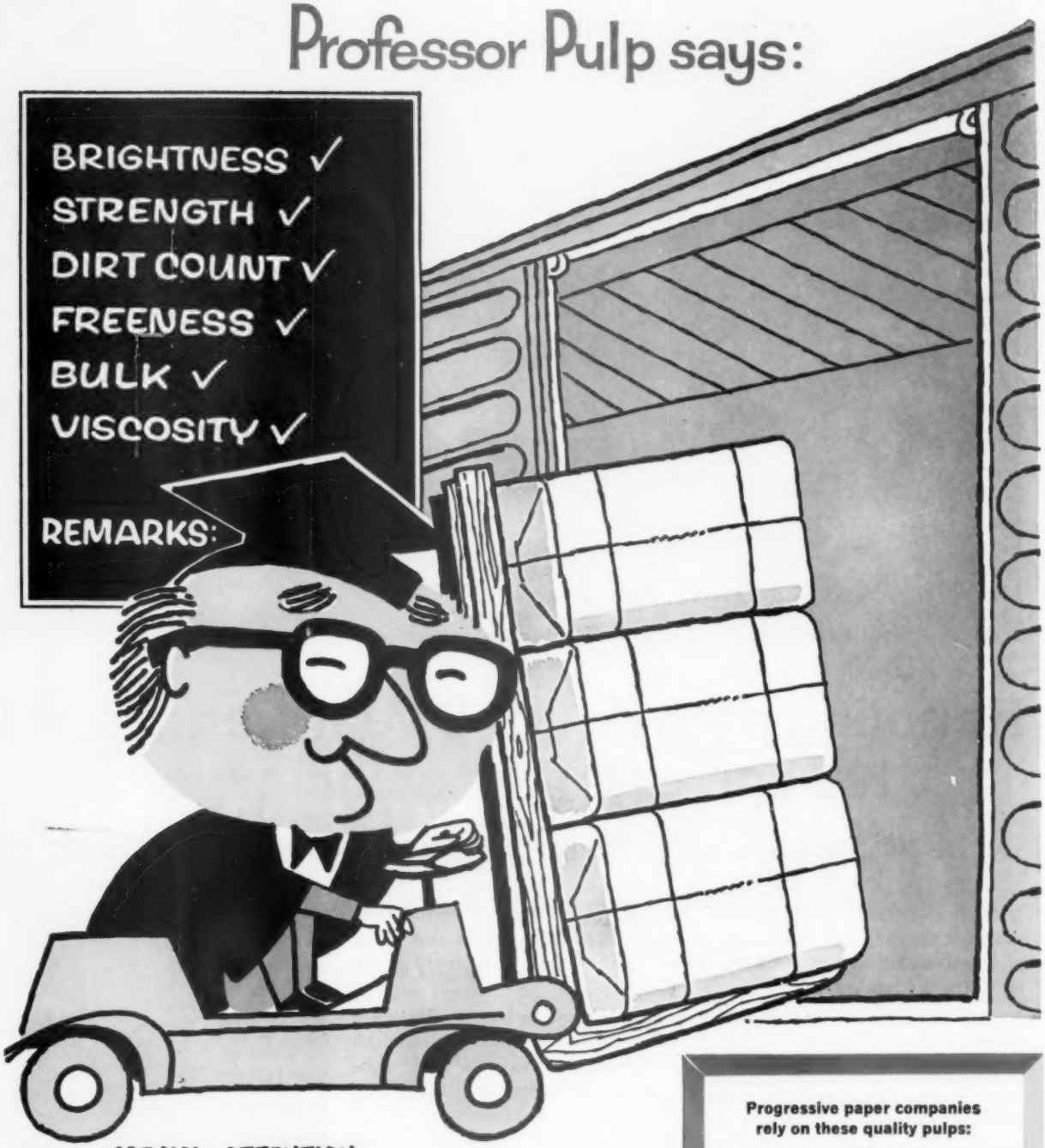
UNITED

ENGINEERING AND FOUNDRY COMPANY

PITTSBURGH 22, PENNSYLVANIA


leading manufacturer of Wires
for
Boxboards
APPLETON WIRE WORKS
CORPORATION
PLANTS AT APPLETON, WIS. AND MONTGOMERY, ALA.
INTERNATIONAL WIRE WORKS, MENASHA, WIS. AN AFFILIATED COMPANY

Professor Pulp says:



SPECIAL ATTENTION...

means that each bale of quality
pulp must meet the most rigid standards
when shipped from our mills.

Howard Smith

PAPER MILLS LIMITED

PULP SALES DEPARTMENT
2300 Sun Life Building, Montreal 2, Canada

MAKERS OF CANADA'S FINEST PULPS AND PAPERS

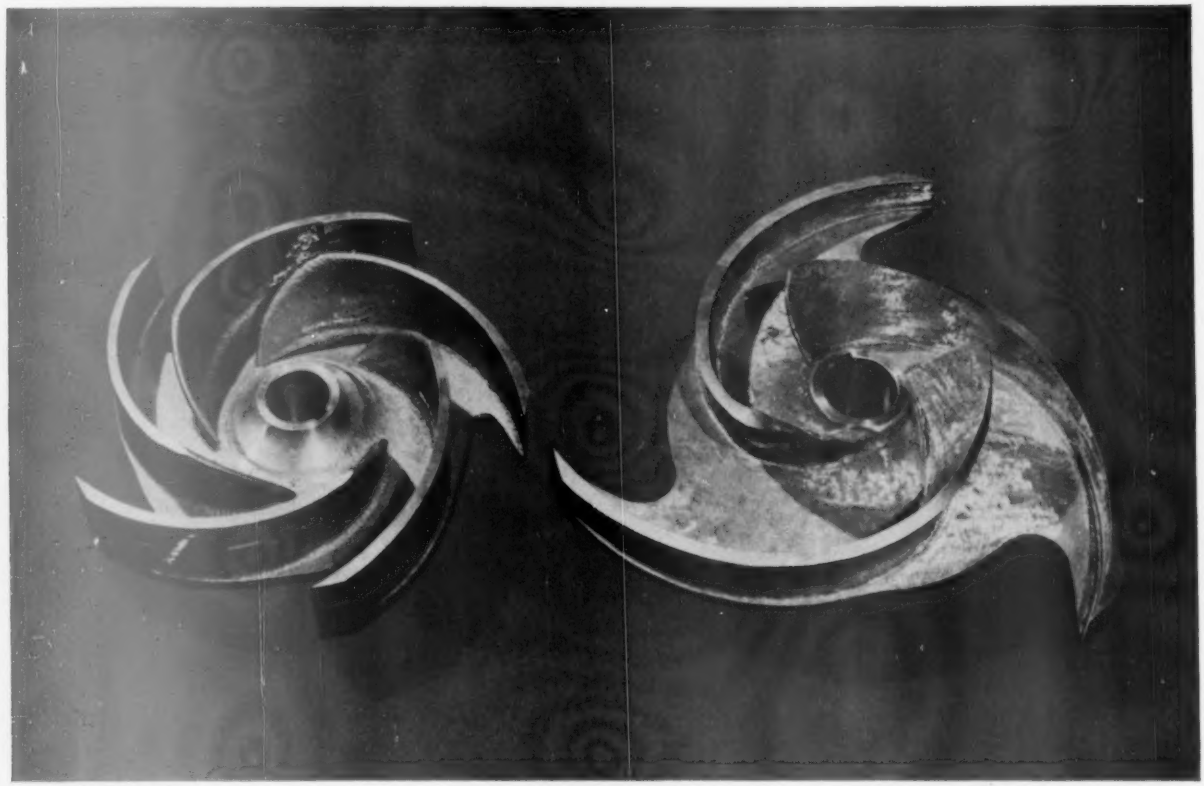
Progressive paper companies rely on these quality pulps:

SEAGULL
Bleached Soda Pulp

STORMONT
Bleached Sulphite

DONNACONA
Unbleached Sulphite

WINDSOR
Unbleached Kraft



Unretouched photograph

Handling pulp liquor 9 years, and look! No corrosion, erosion, wear

Impellers are cast from 10% Nickel Stainless Steel

These impellers may look foundry-new, but they've spent the last nine years successfully fighting off a three-way attack. From corrosion and erosion by caustic liquors . . . from wear by suspended solids.

Faced with these conditions, engineers at Mead Corporation's Kingsport Division, Kingsport, Tenn., decided to standardize on impellers cast from ACI type CF-8M stainless steel. This grade contains 19% chromium, 10% Nickel, a maximum of 0.08% carbon, and 2.5% molybdenum. This nickel-containing combination provides an exceptional degree of corrosion resistance and strength . . . to stand off the daily onslaughts of white, black and green liquors in this alkali-recovery operation.

Can you use such a combination... of corrosion resistance plus strength and resistance to wear and high-velocity impingement? Nickel Stainless Steels provide combinations of specific chemical and mechanical properties . . . well-suited to special requirements. Write for the helpful Inco booklet "Heat Resistant Castings, Corrosion Resistant Castings... Their Properties and Applications."

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York 5, N.Y.

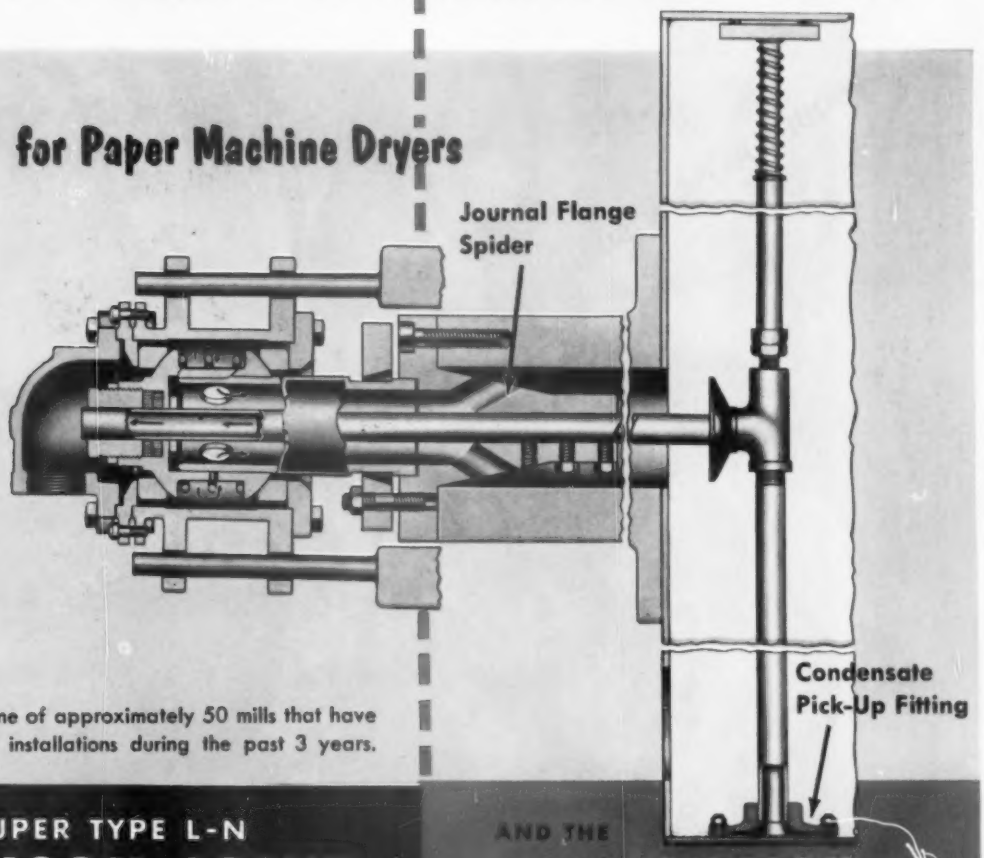
Recovering green liquor without downtime, these pumps are equipped with long-lasting Nickel Stainless Steel impellers. They move hot caustic liquor with specific gravity of 1.16 at 350 gpm, 1755 rpm.

INCO NICKEL

NICKEL MAKES ALLOYS PERFORM BETTER LONGER

You've never seen a Combination like this*...

for Paper Machine Dryers



* Unless yours is one of approximately 50 mills that have made tests and installations during the past 3 years.

SUPER TYPE L-N

JOHNSON JOINT

with "Quick Release" Nipple

AND THE

NEW JOHNSON ROTARY SYPHON

Best Design Yet for getting steam into dryer rolls with rotating syphon pipes. Needs no lubrication or adjustment. Has only a few simple parts—less chance of trouble plus easier field servicing. Assembly plate provides ready access to syphon pipe.

Floating Action—Rod supports carry all the real weight, let the rotating assembly "float" freely inside. Adaptable for machines with open or enclosed gearing.

SUPER Construction...*and Stamina*—Teams rock hard "Green Streak" seal rings with special Ni-Chrome plating, slashes friction load and increases service life.

Easy on...and off—"Quick Release" nipple uses powerful wedging action to lock joint in place. Install it—or remove it—with just an end wrench.

Engineers' Data Book summarizes research behind this new development, has full technical information. Ask for copy of: "Condensate Behavior in Paper Machines."

Better Drainage of dryer rolls results from a new concept of condensate pick-up design. Holds condensate to a minimum. Rotary Syphon can be located any place along the dryer shell. Helps to reduce horsepower requirements.

Higher Roll Temperatures—Thinner condensate film means better transfer of heat units to dryer shell. Better drying can be translated directly into increased production.

Easier Installation—No need to get inside dryer to drill and tap dryer head. Install right through manhole. For rolls with handholes only there's even a journal-inserted rotary syphon.

Reduced Maintenance—Only a few simple trouble-free parts. Ends bearing wear caused by unnecessary water weight and prolonged "cascading." Easily removed for inspection.

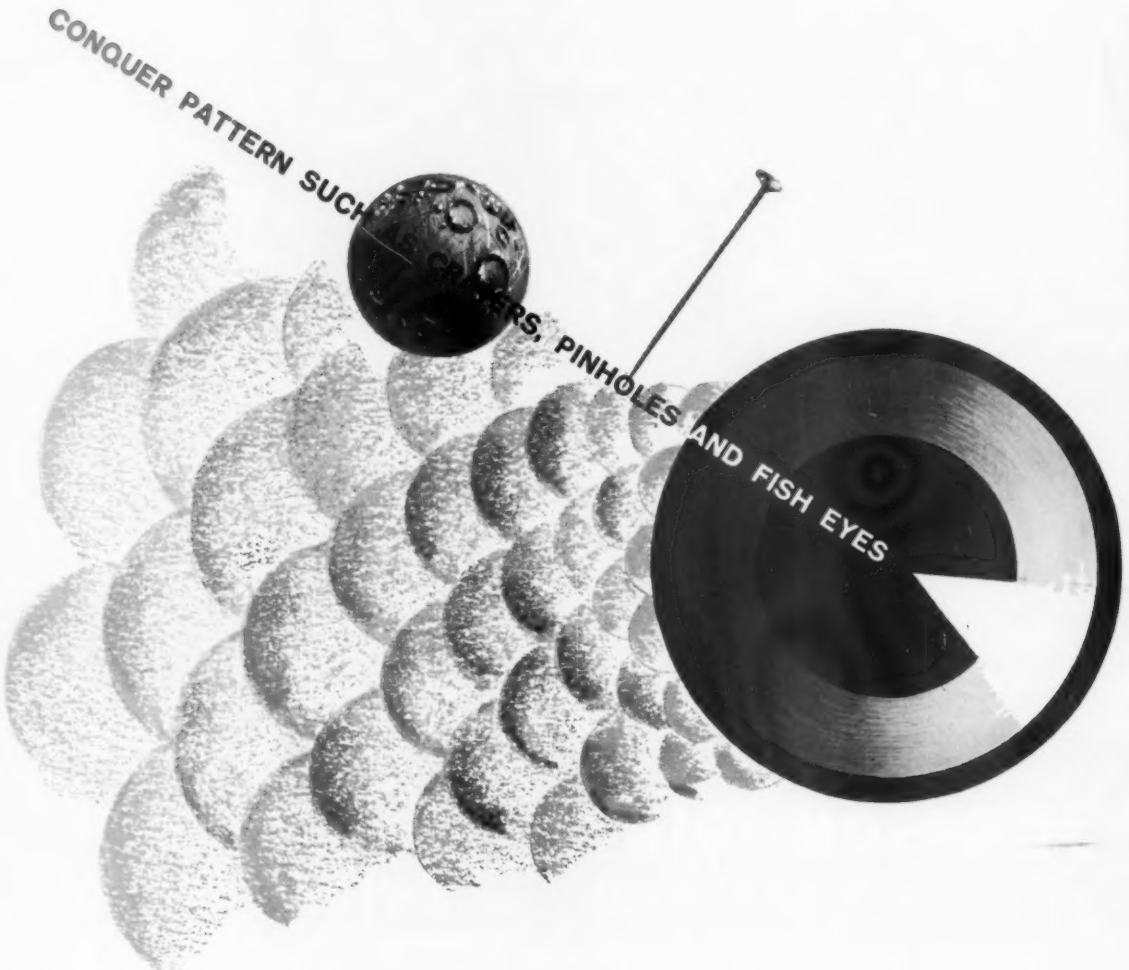
Trial offer still goes. We'll gladly furnish a pair of Joints and Syphons for 90-day trial in your own mill, without cost or obligation. Ask for details.

THE JOHNSON CORPORATION

849 WOOD STREET • THREE RIVERS, MICHIGAN

Rotary Pressure Joints • Direct Operated Solenoid Valves

A SKILLED HAND IN CHEMISTRY . . . AT WORK FOR YOU



UP-GRADE YOUR COATED SHEET. It takes a specific antifoamer, defoamer and/or leveling agent to turn out consistently smooth, flawless coatings. So much depends on the conditions of the individual mill—the quality of the water, the constituents of the coating mix, how long and how violently the coating is agitated. By judicious application of Nopco defoaming and leveling additives, coating chemists can control the process so that foam is inhibited, entrained air is released, and the viscosity of the coating color allows optimum flow characteristics. Ask your Nopco technical representative to check your coating mix—whether protein, latex or starch—and to suggest the defoamer best for your needs.

Dispersants
Defoamers
Wax Sizes
Detergents
Emulsifiers
Calender Stack Lubricants

NOPCO CHEMICAL COMPANY

NOPCO®

60 Park Place, Newark, N.J.

Plants: Harrison, N.J. • Carlstadt, N.J. • Richmond, Calif. • Cedartown, Ga.
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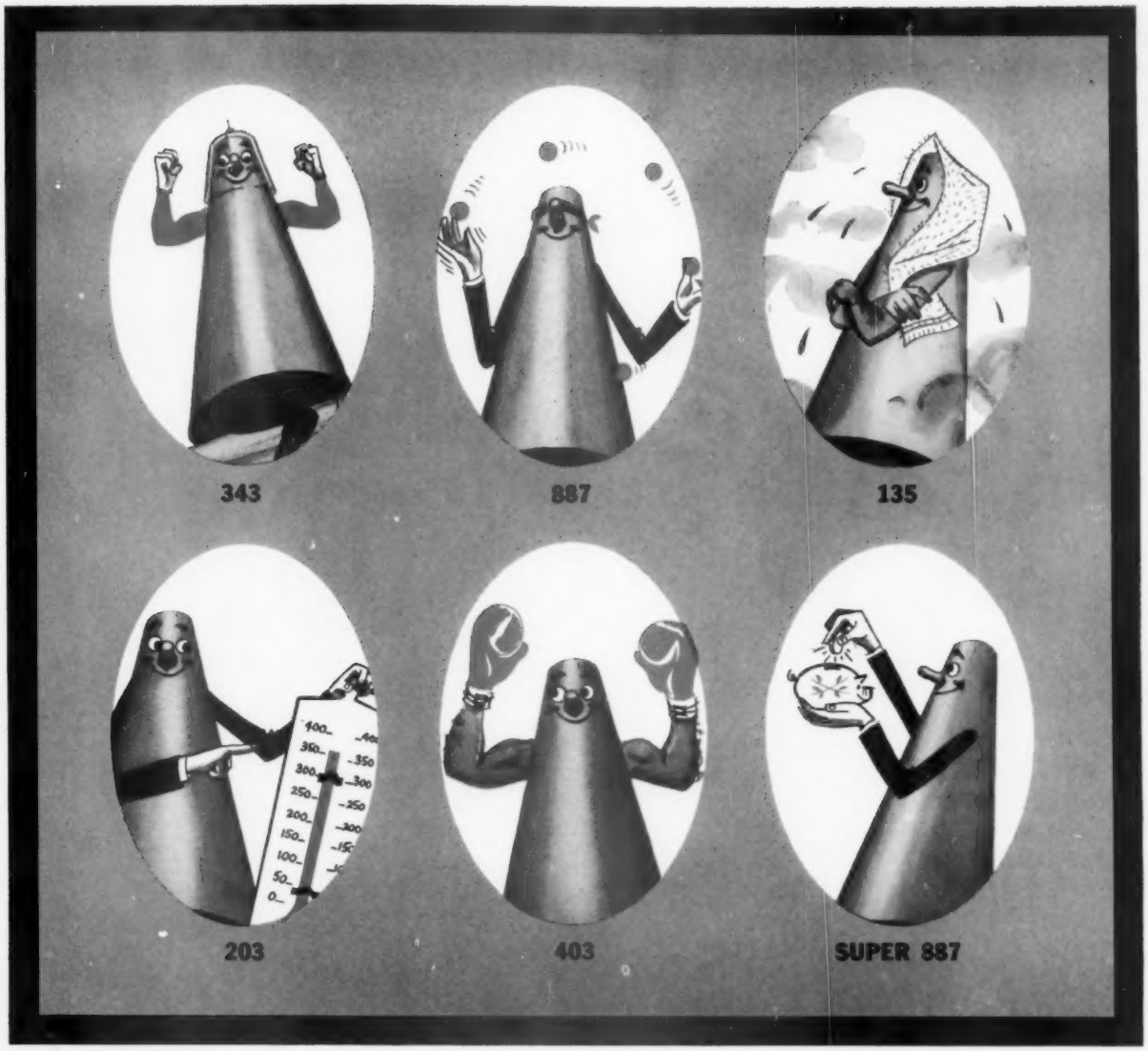
Manufacturing Licensees Throughout the World



THIS GIFTED FAMILY OF MOUNT VERNON DRYER FELTS

GIVES YOU THE ANSWER TO EVERY DRYER FELT REQUIREMENT

Whatever your dryer felt need, for whatever the paper-machine position . . . you can count on one of our MOUNT VERNON Dryer Felts to answer your purpose . . . and you can count on our trained staff of MOUNT VERNON engineers to help solve any of your dryer felt problems. This wide range of superior felts has been designed to do the job better, stay on the job longer and to aid in the making of finer qualities of paper. We will be glad to discuss your requirements with you and to recommend the dryer felt in the MOUNT VERNON family that we believe is best suited to your needs.

SIAMESE 135 – All-cotton duplex dryer felt with exceptionally smooth face. An old reliable for positions where maximum porosity and efficient drying are needed.

WOODBERRY 887 – Medium weight cotton dryer felt with asbestos yarns in the face to provide greater resistance to heat. Recommended for a wide variety of drying applications.

WOODBERRY 403 – Synthetically reinforced, full-faced asbestos dryer felt. Designed to yield long life and maximum drying efficiency in the hottest positions.

RICHLAND 343 – Synthetic reinforced cotton dryer felt. Engineered to endure longer runs where real wear-resistance is needed.

WOODBERRY SUPER 887 – Combination of asbestos and synthetic fibers give this felt potential for running in many positions where more expensive combinations are currently being used.

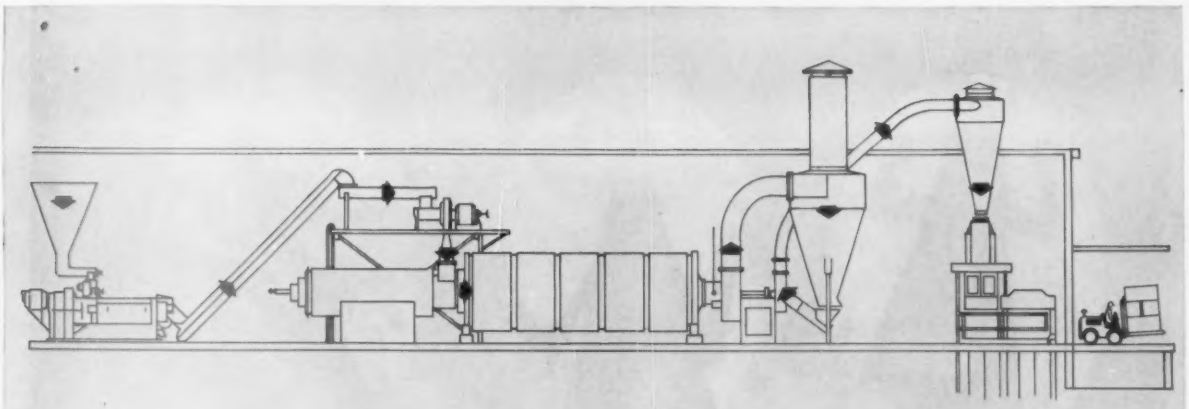
WOODBERRY 203 – Heavy-weight, full-faced asbestos dryer felt. Provides extra strength where heat-resistant clothing is required.

UNIFORMITY Makes The Big Difference

Mount Vernon Mills, inc.

A LEADER IN INDUSTRIAL TEXTILES

DRYER FELT DIVISION, 201 East Baltimore Street, Baltimore 2, Maryland • Telephone: SA 7-5845



NEW PULP-DRYING SYSTEM SOON PAYS FOR ITSELF

The schematic drawing above shows the HEIL DRYER in a typical pulp-drying system.

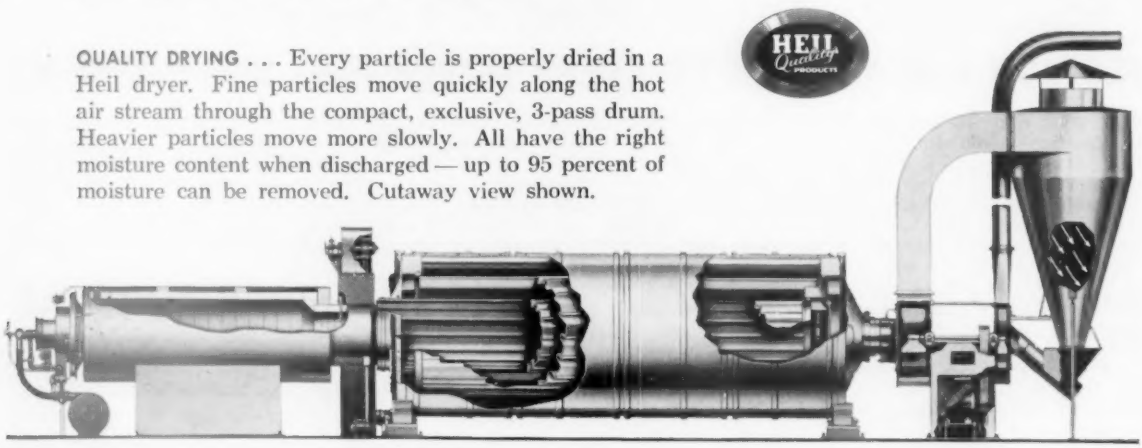
It is a modern method of preparing pulp for shipment or storage and may be used on all types of pulp. It is especially desirable for ground wood pulp because microbiological deterioration is arrested in the drying process.

Installations of this type usually pay for themselves in one or two years. In addition to the major savings in freight — shipping dried instead of waterlogged pulp — there are many other savings in time and handling.

We'd like to give you the full story on how you can save money and get high-quality dried pulp with a HEIL DRYER — the dryer that soon pays for itself.

Write for complete details. Users' names on request.

QUALITY DRYING . . . Every particle is properly dried in a Heil dryer. Fine particles move quickly along the hot air stream through the compact, exclusive, 3-pass drum. Heavier particles move more slowly. All have the right moisture content when discharged — up to 95 percent of moisture can be removed. Cutaway view shown.



THE HEIL CO.

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the only real drawout 2- to 5-kv controller...with a contactor you can get at, into, around...without tools

▲ This means no unbolting—no wires to unfasten. You rack the contactor to "disconnect position" with the door closed. Open door. Roll contactor carriage out. It's that simple, that quick . . . and safe. ● Inspection? Lift out arc chutes and barriers. Rotate pole pieces to fully expose contact structure. Fuses? Lift them out, too. No tools, all the way. ■ SPACEMAKER control. First dramatic new achievement in high-voltage motor control in more than a decade. To learn more about the many cost-cutting features, call your A-C distributor or representative. Or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wisconsin.

LET'S COMPARE THESE FEATURES

	SpaceMaker Controller	Controller "A"	Controller "B"
Two starters in 90" height	Yes	No	No
Drawout construction	Complete	Partial	No
Simultaneously disconnects all six main leads (line and load)	Yes	Line Only	Line Only
Automatic shutters isolate line	Yes	Yes	No
"No-tool" inspection of contacts	Yes	No	No
Track-resistant, flame-retardant insulation	Yes	No	No
Contactor construction	Double Break	Single Break	Single Break
Overload relays visible from outside	Yes	No	No

ALLIS-CHALMERS

A-1521

Open motor loves a shower

Despite constant exposure to a foamy pulp mixture . . . despite repeated "hosings" — this *Super-Seal* open motor never falters.

Its secret is *Poxeal* insulation. This Allis-Chalmers development shrugs off everything but work. *Everything* means water, dampness, dust, abrasives, corrosives, contaminants and weather.

In larger *Super-Seal* motors, *Silco-Flex* silicone rubber insulation offers similar benefits.

Besides all this, *Super-Seal* motors easily withstand sudden overloads. With their 15% service factor, they provide an extra safety margin not available in standard totally enclosed motors.

And they're available in a complete range of integral horsepower ratings.

For all the facts about our *Super-Seal* motors, call in your A-C representative or distributor. Or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wisconsin. A-1550

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ALLIS-CHALMERS

For maximum quality...
Rex bleaches with Solvay Hydrogen Peroxide

This sheet is Rex Glo Dull. It is one of the quality coated offset stocks produced by the Rex Paper Co. for high-caliber advertising printing and annual reports.

Rex starts with a composite stock containing a high percentage of reclaimed paper. Solvay® Hydrogen Peroxide, used in the bleach liquor, helps them produce high grade conversion coated offset paper. They report hydrogen peroxide provides maximum brightness without the fiber degradation of harsher bleaching agents.

Solvay technical representatives will be glad to work with you on improving brightness and reducing bleaching costs. Contact your nearest Solvay branch office . . . no obligation, of course.

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you can see the sense to HILLS-McCANNA BALL VALVES

for automatic and remote on-off control

The only ball valves for service from -150° F to 1000° F

One look at a Hills-McCanna ball valve with pneumatic or electric operator tells you why it is a natural for remote flow control:

QUARTER-TURN OPERATION—permits use of a simple, economical, quick-acting operator.

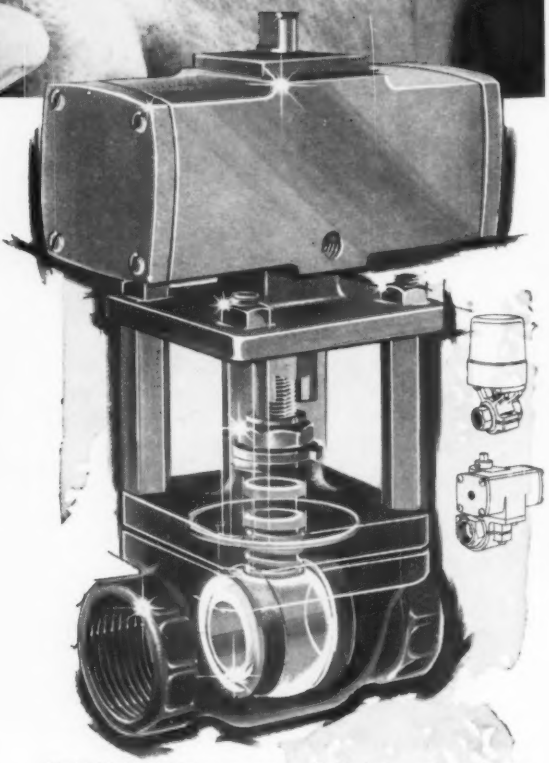
LEAKTIGHT—line pressure forces closed ball tightly against downstream seat. Stem sealing is solved by twin seals illustrated below.

REMARKABLE VALVE WEAR LIFE because of smooth non-abrading contact between metal ball and nonmetallic seats.

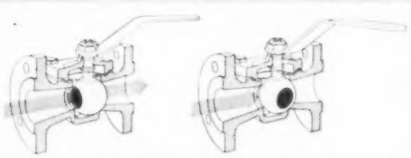
1/4" THROUGH 12" SIZES—screwed, socket weld, flanged ends . . . pressures from 10^{-6} mm Hg to 1000 psig . . . temperatures from -150° F to 1000° F . . . wide range of body materials for corrosive and non-corrosive services. "Fire-Seal"® seats available for leaktight closure under excessive temperatures.

PNEUMATIC OPERATORS—optional accessories include a solenoid valve for electrical control, limit switch for remote on-off operation, and a fail-safe device to return valve to open or closed position in event of air system failure.

ELECTRIC OPERATORS—weatherproof, explosionproof, rugged, and reliable.

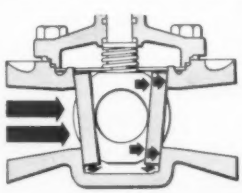


McCANNASEAL® top-entry valve illustrated meets applicable API and ASA standards.



QUARTER-TURN OPERATION; low pressure drop. When the big, round, turbulence-free orifice is in line with the pipe, valve is wide open. A quarter-turn closes it completely against flow in either direction.

"WEDGE-SEAT" DESIGN of McCannaseal valve compensates for wear—ball and seats are continuously wedged down into body under pressure of long-lived, corrosion-resistant, nonflexing, nontorsional spring.



SEND TODAY FOR NEW 32-PAGE CATALOG giving complete specifications and service recommendations for Hills-McCanna ball valves —manual and motor operation.

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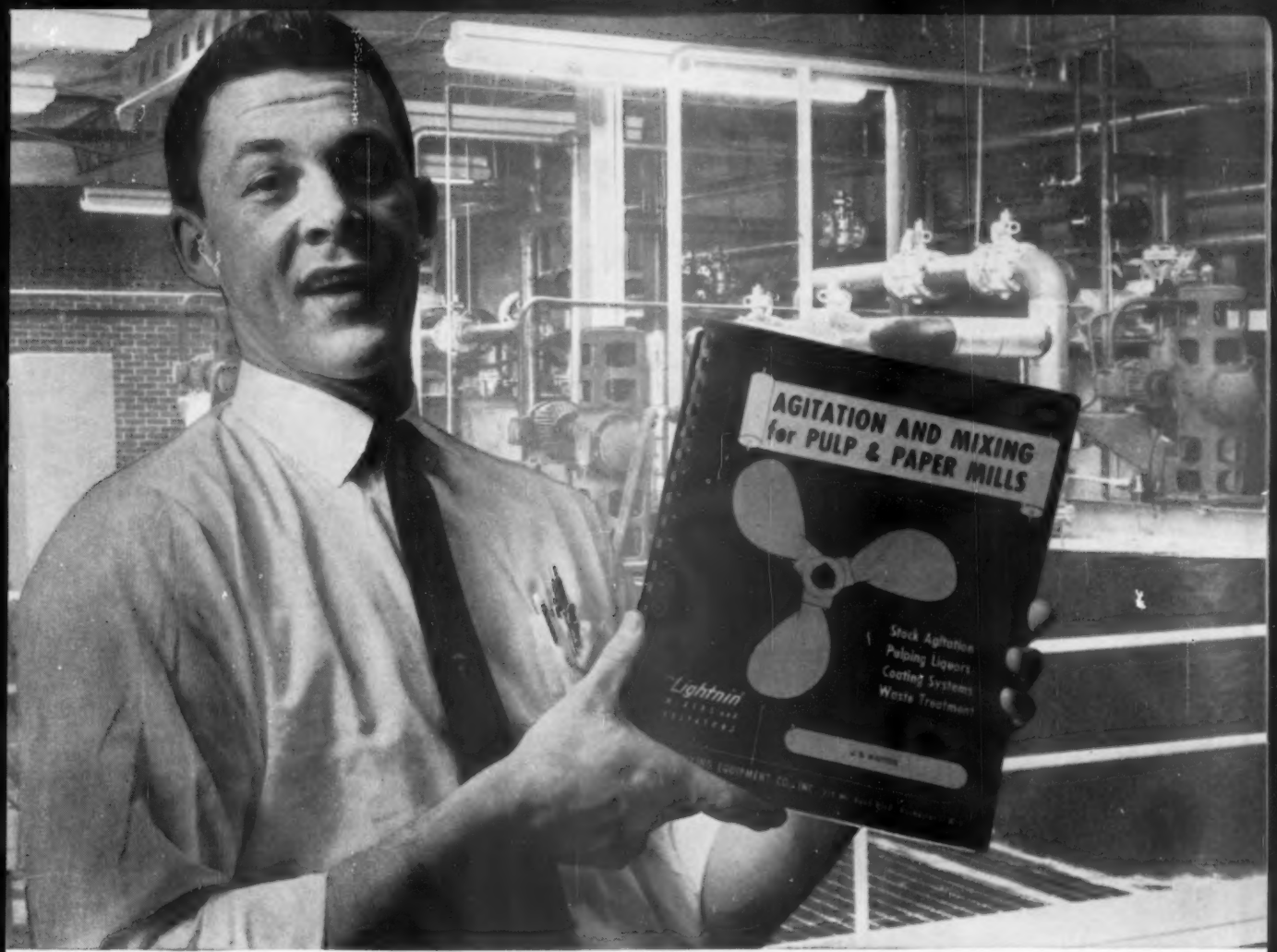

Getting the results you want from agitated chests and tanks is the subject of this new 112-page manual.

Complete, factual, informative, it is the first book of its kind ever written for pulp and paper engineers. It is based on ten years of unique research into the technology of mixing and agitation in the pulp and paper industry, and on hundreds of mill installations, many of which it describes and illustrates.

Anyone in the industry whose work involves agitation or mixing can get a copy free and without obligation by writing to us on his company letterhead.

Here is a partial list of the contents

PAPER STOCK AGITATION. Defining process results, complete uniformity in stock chests, complete motion, controlled zone agitation, side-entering agitators, stock consistency and power requirement, impeller selection, consistency control in continuous systems, performance and design of paper stock mixers.

Case examples. Machine chests, storage chests, blending and mixing chests, mixing boxes.

High-density storage, bleaching, blow pits and blow tanks, couch pits, repulpers.

PULPING LIQUORS. Fluid dynamics: blending, heat transfer, solids suspension, dissolving, gas-liquid operations, liquid-liquid contacting.

Case examples. Green liquor storage, salt cake dissolving, bleach liquors, lime storage, bleach liquor storage, smelt dissolvers, sulfur melters, waste neutralization and oxidation.

COATING SYSTEMS. Clay makeup, clay storage, starch cooking and storage, coating storage, dye solution tank, coating blender.

EQUIPMENT DESIGN. Basic design factors, basic mixer components, materials of construction, vertical installations, horizontal installations.

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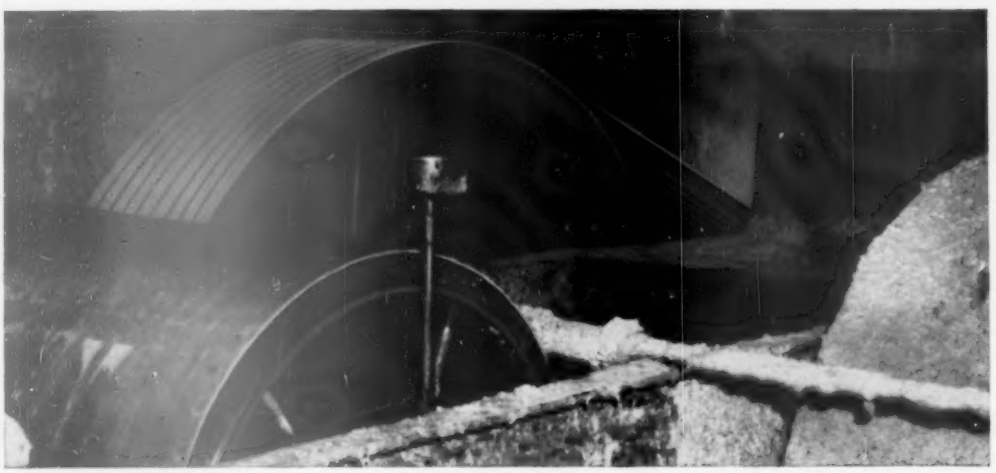
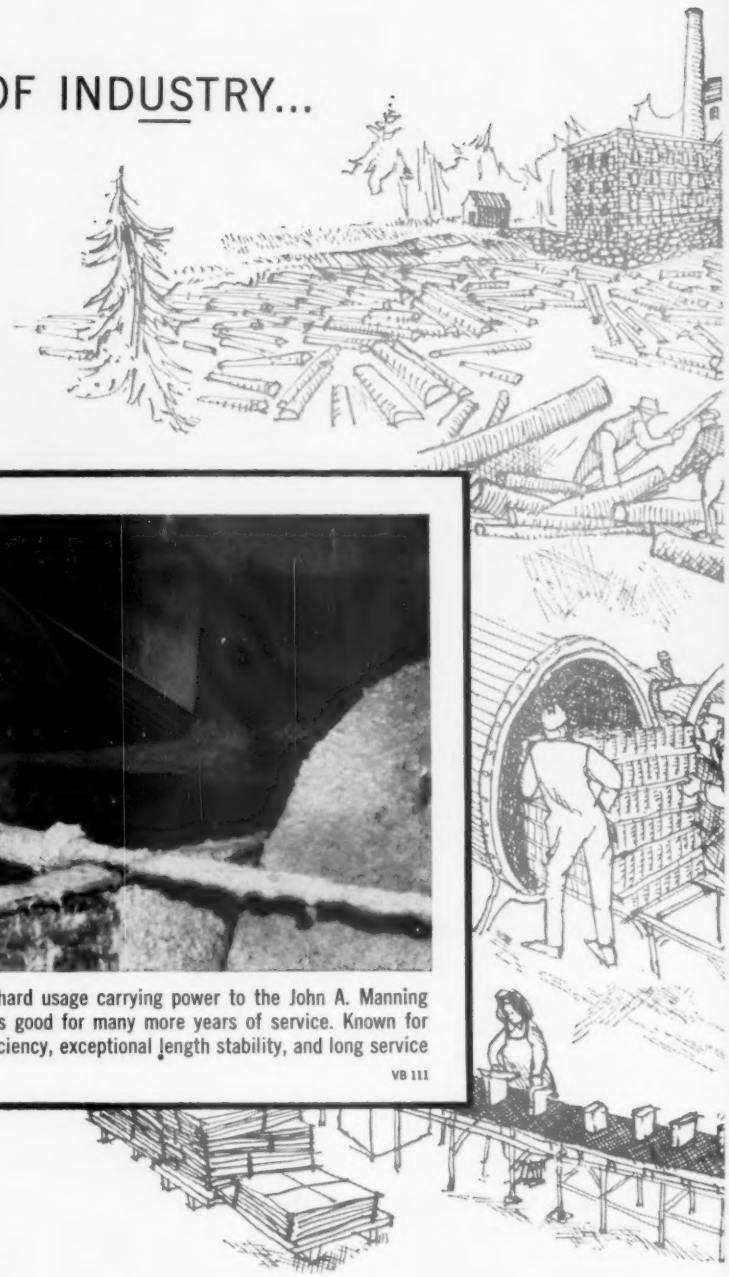
US AT THE HEART OF INDUSTRY...

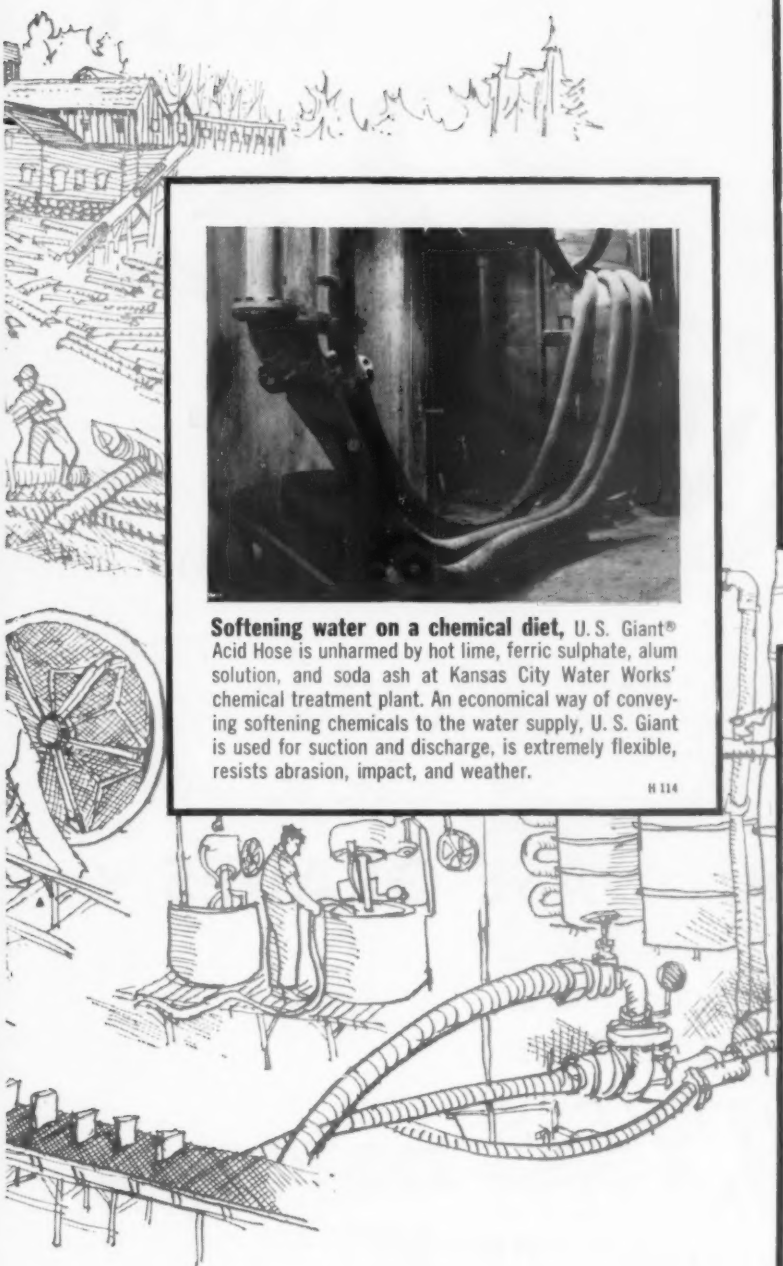


Showing no appreciable signs of wear after 17 years of hard usage carrying power to the John A. Manning Paper Company's beater drive, this set of U. S. Royal V-Belts looks good for many more years of service. Known for maximum reliability and safety, U. S. Royal V-Belts provide top efficiency, exceptional length stability, and long service life for all types of drives.

VB 111

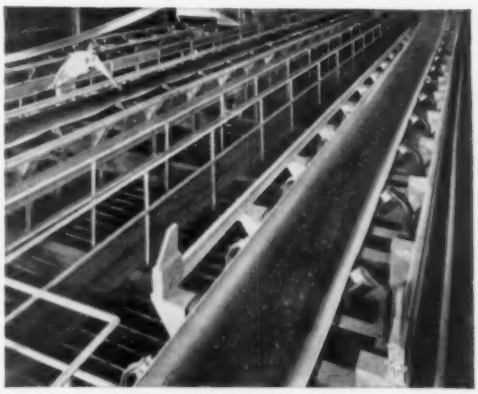


Look into the paper industry and you'll find US Industrial Rubber Products everywhere... helping to increase production, keep maintenance down, boost profits. It makes sense to look to US—world's largest manufacturer of industrial rubber products—for all your rubber needs.



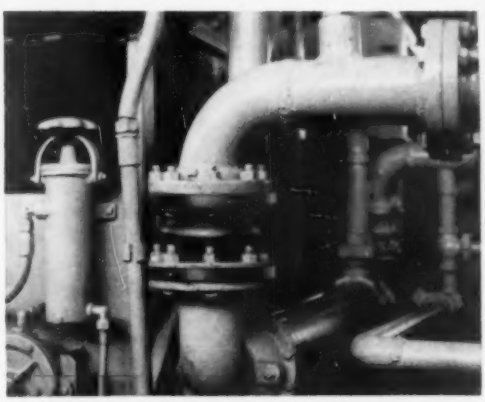
Softening water on a chemical diet, U.S. Giant® Acid Hose is unharmed by hot lime, ferric sulphate, alum solution, and soda ash at Kansas City Water Works' chemical treatment plant. An economical way of conveying softening chemicals to the water supply, U. S. Giant is used for suction and discharge, is extremely flexible, resists abrasion, impact, and weather.

H 114



"We turn out 3,000,000 feet of board a day," reports the chief engineer of Masonite Corp., Laurel, Miss., "and our entire volume of wood chip required to fabricate the board is carried on US oilproof Paracril® Conveyor Belts that operate 24 hours a day, 7 days a week over deep-trough idlers. This belt system has reduced downtime considerably, cut maintenance costs 25%."

CB 117



Absorbing expansion and contraction forces before they can damage piping and equipment, tough US Expansion Joints compensate for misalignment and soak up vibration as well. Their ability to contain pressures, to serve as a permanent, maintenance-free part of the piping system is indicated by the fact that they are often painted over with the rest of the equipment.

EJ 102

For every industrial rubber product need, turn to US. For Conveyor Belts, V-Belts, the original PowerGrip "Timing"® Belt, Flexible Couplings, Mountings, Fenders, Hose and Packings . . . custom-designed rubber products of every description. Discover why U.S. Rubber has become the largest developer and producer of industrial rubber products in the world. See your U.S. Rubber Distributor or contact US directly at Rockefeller Center, New York 20, N. Y.

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PULP & PAPER

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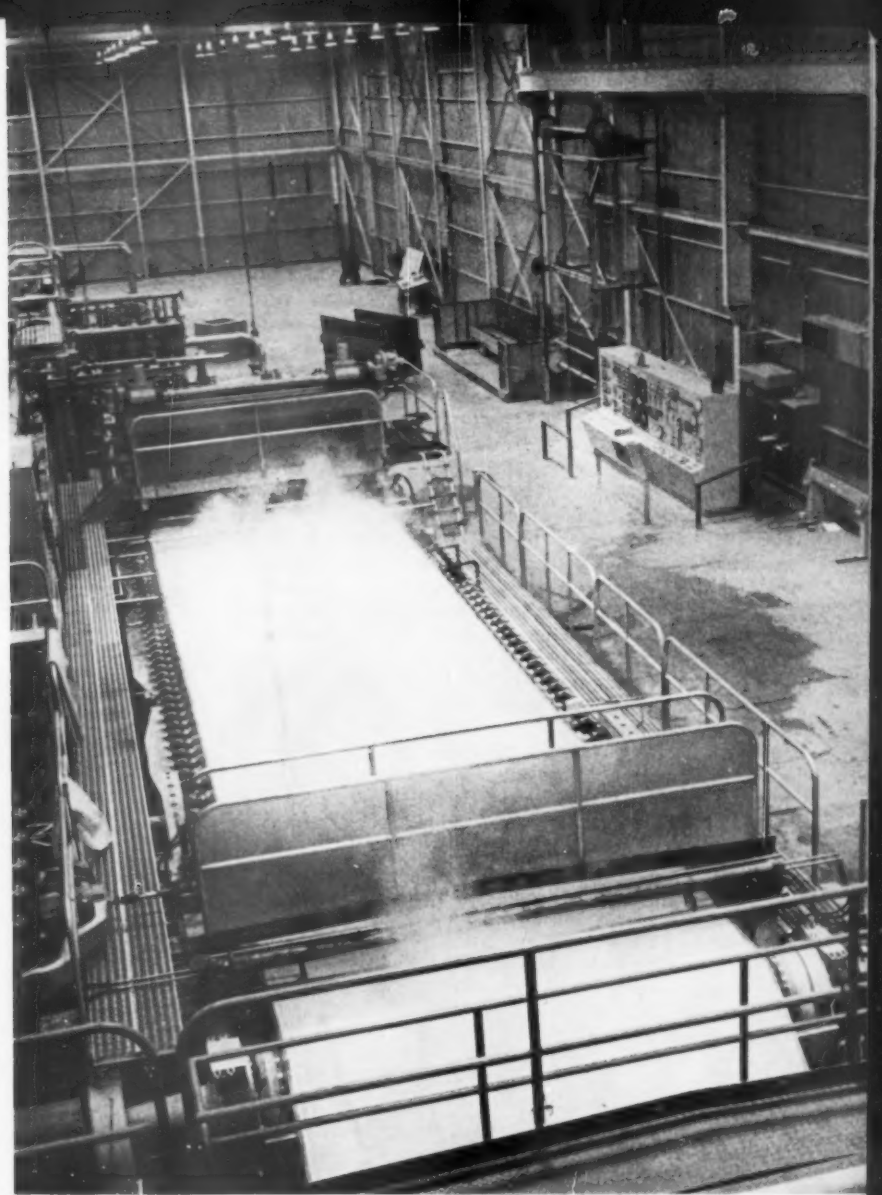


PAPER MACHINE Fourdrinier of the 50-tpd, 150-1,200-fpm machine has a 136-in. wire, with a 124-in. trim width.

Simpson Lee's Ripon Mill

By LOUIS H. BLACKERBY, Western Editor

—Ripon, Calif. SIMPSON LEE Paper Co.'s mill here, which started up in September, is the newest fine paper mill in the industry.

The Simpson Lee name—only two years old—is a consolidation of two independents, which together have operated nearly 100 years. The Simpson Paper Co. of Everett, Wash., joined with the Lee Paper Co. of Vicksburg, Mich., late in 1959. Each company had one mill, each with three paper machines. Ripon gives the company a seventh machine.

Production at Everett is book offset and business papers; the Vicksburg plant makes text, covers, bonds, bristols, ledgers and various technical papers.

Ripon, 80 miles east of San Francisco in the San Joaquin Valley, was selected as a mill site because of its suitable water supply, excellent transportation services and closeness to the population center of the 11-state market the mill will serve.

The 200-acre plant site is on the Stanislaus River and Highway 99. The main plant building is a 360-ft. by 520-ft. concrete tilt-up wall structure. Except for the pulp preparation and machine room sections, the building is only one story high.

Mill has high degree of instrumentation

Plant layout and process design work were done by the company's Vicksburg engineering staff, which also supervised the on-site installation of equipment. The general contractors designed and built the plant structure.

Long experience is reflected in the mill design. New methods and facilities incorporated into production processes at this plant make it a continuous, highly instrumented operation. In fact, the mill is reputed to represent the highest state of instrumentation yet achieved in the production of the quality printing grades that it makes.

The woodpulp supply is purchased in baled form and includes bleached sulfite and kraft of both hardwood and softwood species. Each pulp is individually repulped and refined separately through the stock preparation system, then retained in tile stock chests from which pulp is continuously drawn.

Processing starts when the palletized bales are delivered by forklift to the pulping station. The repulper, a Jones Pulp-Master of 4,000-lb/batch capacity, is surrounded by a unique bale transport and handling system of Simpson Lee design.

The operation involves placing a four-bale load of pulp on a conveyor, which lifts the load about 35 ft. and brings the bale stack to a stop in horizontal position. A piston-cylinder unit pushes the bales onto a wide, horizontal belt that delivers directly to the Pulp-Master. All these operations, from conveying through delivery into the pulper, are controlled from an operating station located at base of the conveyor.

Pulp from the Pulp-Master goes via swing-type valve to three tile chests, each receiving a single type of pulp. To refine the individual pulps, each of the three chests has its own Double-D refiner, which, in turn, has its own refined-stock machine chest. Hence, three of the four pulps making up a furnish are obtained by repulping market pulp by batch system.

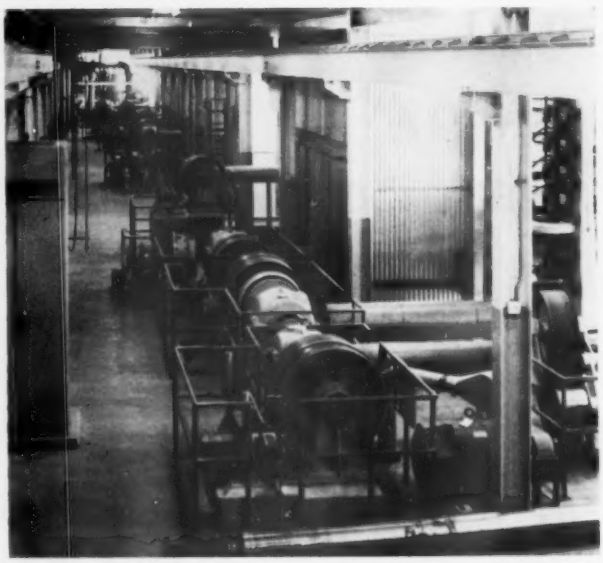
The fourth pulp is made from broke. All dry broke is shredded and baled and then processed in a Jones Hi-Lo broke pulper. This involves admitting a predetermined amount of water per bale of broke to the broke pulper as a means of obtaining a specified consistency for each batch. Flow from the Hi-Lo pulper is to a broke chest. A second broke chest receives couch-pit broke. Contents of these two chests are metered to a third chest, which serves as machine chest for the mill's fourth type of pulp.

The four refined pulps and all additives—including coloring, but excluding alum—are brought together in the next processing stage, where flow becomes fully continuous. The pulps and additives intermix on an instrument-controlled basis in an Impco blender.

Alum is added to the blended stock en route to a single Fibremaster II jordan. This unit imparts fiber-cutting action to stock, which then goes through a consistency regulator to the fan pump. Next it goes to a three-stage Bauer cleaner system and is subsequently screened by two Bird Centriscreens (in parallel) before reaching the open-type three-baffle Beloit headbox.

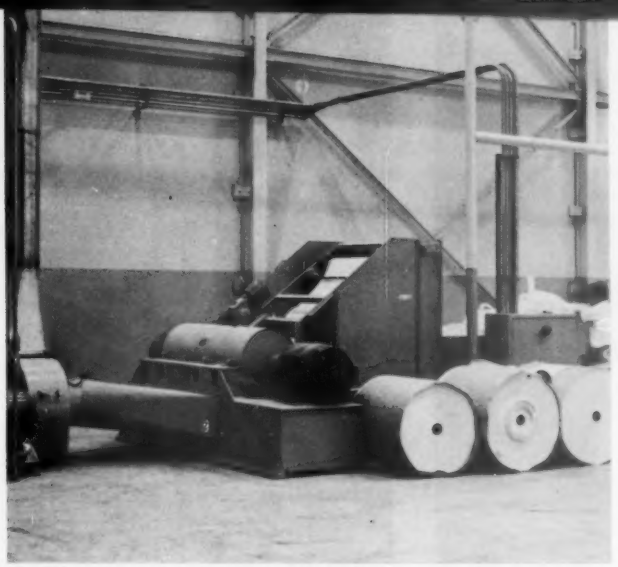
The machine has a 136-in. wire and 124-in. trim, a speed range of 150-1200 fpm, and

STOCK PREPARATION 1) Pulp bales are loaded into conveyor by forklift four at a time.



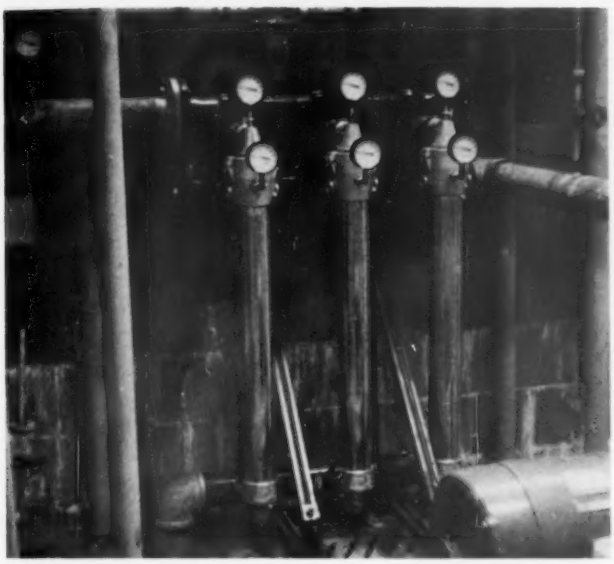
PAPER MACHINE 1) Section drives are powered by belt linked to basement-mounted line shaft.

FINISHING 1) Cartons of quality printing paper are vacuum sealed to keep it clean and dry.

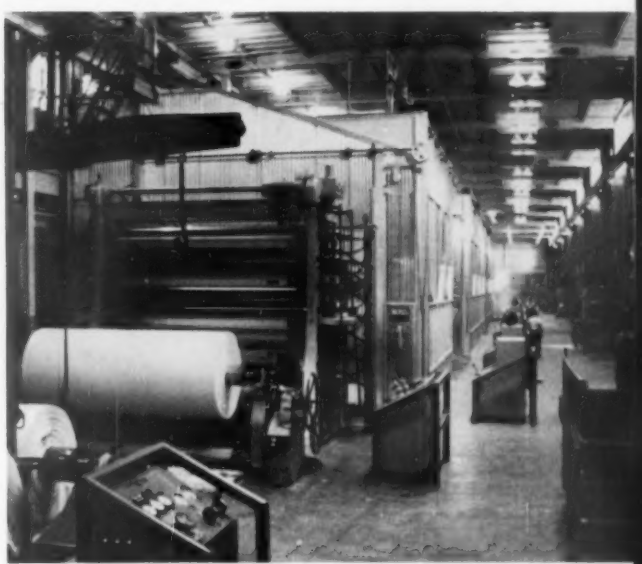


2) Broke, which is one of four types of pulp that are used in mill, is processed through this shredder before it is delivered to the baler.

3) Shredded broke is dropped into this vertically fed baler. It is then processed in pulper and blended with the three other kinds of pulp.



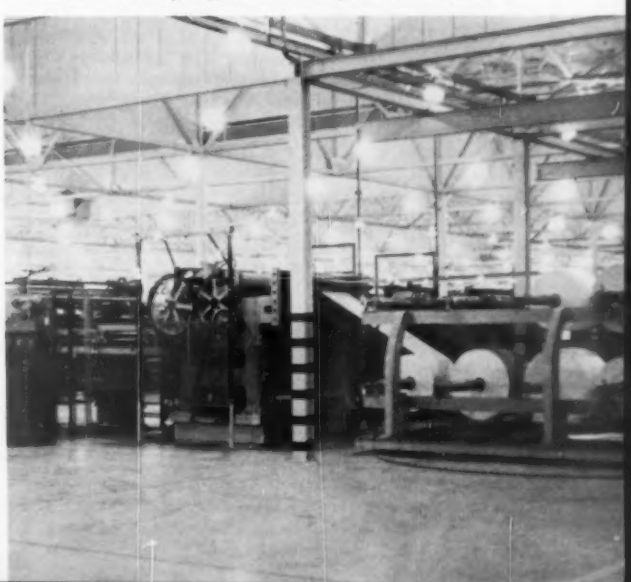
2) Stainless steel strainers for shower water show emphasis on cleanliness. Relationship of inlet and outlet gauges indicates degree of plugging.

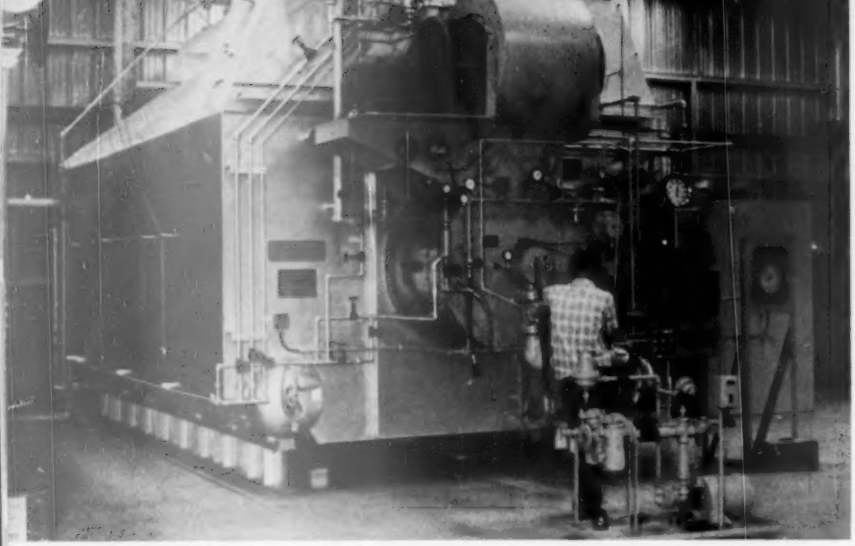


3) Dryer sections are enclosed by hoods above and below floor. Operating floor side doors open automatically if web breaks.

2) Reams are precision trimmed on 100-in.-wide trimmer, which has automatic spacing element. Note closeness of ream storage area.

3) Two rotary cutters convert rolls to sheets. Each has turntable backstand of 12-roll capacity, with six loading rear and six front.





POWER Package boiler is fired by natural gas, but is equipped to burn oil on standby basis. It furnishes steam to mill at 250 psi, at rate of 50,000 lb/h.

STORAGE Tank farm where additives are stored main mill. Blacktop paving fosters

KEY MEMBERS OF MANAGEMENT

Left: David F. Reid, mill manager, and Carlton Martens, temporary paper machine superintendent. Mr. Reid joined Lee Paper Co., Vicksburg, Mich., in 1953, left to be converting superintendent at Simpson Lee's plant at Everett, Wash, Mr. Martens, who went to Ripon from Vicksburg on a "loan" basis, is still there.

Right: Richard L. Bradford, plant engineer, was electrical engineer at Fibreboard Paperboard Products Corp.'s Stockton (Calif.) plant prior to joining SL in 1960. He worked with Vicksburg engineers on the design of Ripon.

Center right: James A. Lewis, technical director, joined Lee Paper's technical department in 1957.

Far right: James G. Ramsey, personnel manager, and Forrest Peters, finishing supervisor. Mr. Ramsey had been paper machine superintendent at Everett, where he worked for 27 years. Mr. Peters formerly was coating superintendent at Everett.

Power, storage, waste removal at Ripon

rated capacity of 50 tpd. Production already exceeds this rating.

The Fourdrinier section is equipped with Beloit's new constant wire tension controller. Other components of the Beloit machine include three wet presses (a suction first and two plain), and a three-section dryer equipped with six Rice-Barton-Overly's Gardner dryer shrouds—two per section. Each dryer section is individually enclosed by Ross hoods above and below the operating floor. These hoods have full-length openings closed by doors equipped with electric-eye controls, which retract the doors in case of a web break.

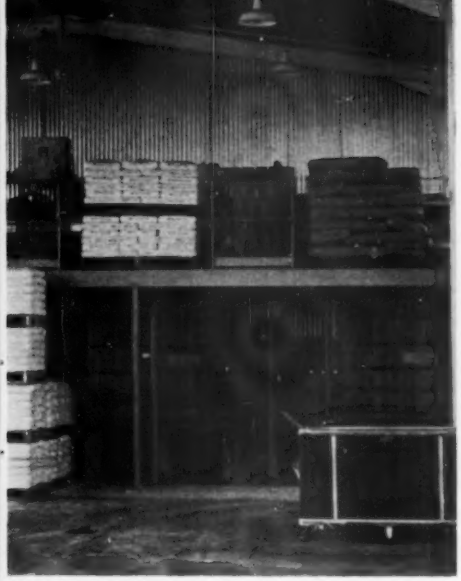
Machine components include a breaker stack between the first and second dryer sections, a horizontal size press between the second and third sections calender stack, a reel and a winder—all of which were built by Beloit.

Modern finishing facilities make for efficient processing and packaging of papers, both sheets and rolls, in ready-for-market form. Two Hamblet cutters (66 in. x 77 in.) convert rolls into sheets. Each has a turn-table-mounted back-stand. As webs feed into the cutter from rolls in the six "forward" positions, the back half of the backstand is preloaded by inserting full rolls. The preloaded end is brought into feed position when this is required, by revolving the turn table 180 degrees.

Although there are two trimmers in the finishing system, a new 100-in. Seybold Auto-Spacer handles nearly all the sheet trimming.

The transport-handling system, starting at sheet inspection stations where skidloads are delivered by forklift, was specially designed by SL engineers and built by American Manufacturing Co. These facilities serve the inspection-counting areas, and the trimmers and outfeed line to the packaging section. Except for a slat conveyor extending past the two inspection stations to the trimmers, stacks ride (or rest) on a thin film of air continuously blowing through the perforated top of components making up the system.

High quality sheeted printing papers produced here are custom packaged by either of two methods. Finished stacks, which are marketed in "flip-top" corrugated cartons, are sealed in a Southworth vacuum sealer. Sheeted stock in shipping-skid form is compressed, then wrapped and strapped in a Signode compression strapping station. Both



and prepared is adjacent to pulping section but outside cleanliness of operation.

WASTE White-water clarifier cleans water for re-use by mill, while sludge is diverted to three large lagoons which function as settling basins.

types of packaging provide protection against physical damage and change of moisture content, important factors in good customer-supplier relations.

Adequate, suitable water for the mill is obtained from three wells on the site. The wells, tested out at 2500 gpm each, are 30 in. in diameter and 200 ft. deep. A 12-in. diameter casing occupies the center portion and is encased in gravel fill. Well water is pumped into a circular tile reservoir, mounted on a ground-level base, from which the mill draws its supply at 400 to 500 gpm.

Consumption would be materially higher except for extensive re-use of water throughout the mill processes. Were it not for this "water husbanding," daily consumption would be an estimated 2,000,000 gallons.

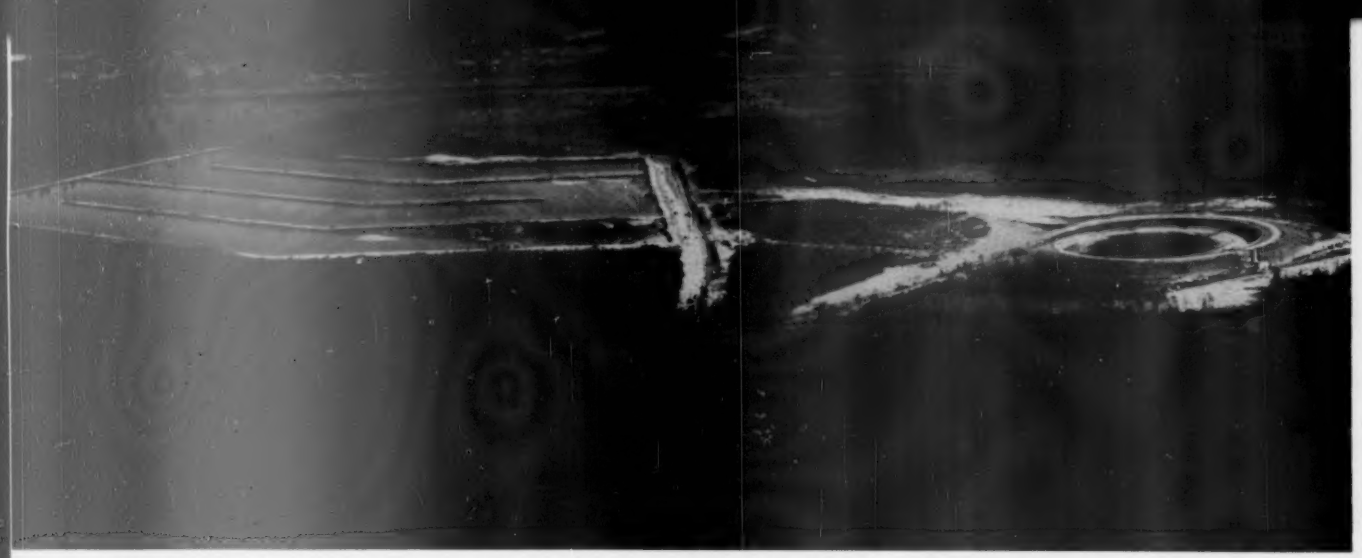
Mill effluent goes to a clarifier for processing. Clear water recovered by this process returns to the mill for use. Sludge from the clarification operation flows to the first of three progressive settling basins. Only after the time-consuming process of passing the water through this chain of lagoons is it released. California has rigorous effluent-treatment specifications. ■

EQUIPMENT

PROCESS—Paper machine, including Fourdrinier, headbox, 3 wet presses, 3-section dryer, breaker stack, sizing press, calender, reel, winder, Beloit Iron Works; Gardner high velocity dryer shrouds, Rice Barton Corp.-Overly's; Machine hood and air handling system, J. O. Ross; Roll covering: table roll, wet presses, breaker stack, size press (rubber and Microrok), Huntington Rubber Mills; Vickery felt conditioners, Centriscreens, Vickery doctors, Bird Machine Co.; Electrical system: distribution, switch gear, sub stations, motor control centers, motors, generators, high voltage cable, steam turbine machine drive, General Electric Co.; Consistency regulators, DeZurik Corp.; Magnetic flow meters, Fischer & Porter Co.; Drainage system, Ross Midwest Fulton; pH system, Beckman Instruments Inc.; Instrumentation, Taylor Instrument Co.; Pumps, Goulds Pump Co.; Vacuum pumps, Roots-Connersville; Stock valves, Fabri-Valve Co. of America; Air operated control valve, Grinnell-Saunders; Pulp-Master 4,000 lb., 3 Double-D refiners 26 in., Fibremaster II jordan, Hi-Lo broke pulper, E. D. Jones Corp.; Balemaster shredder and baler, East Chicago Machine Tool Corp.; Tile work, Chemical Linings; Stainless steel stock blender and stock agitation, Impco; Additive system agitation, Mixing Equipment Co.; Stainless steel, Alaskan Copper Works; Speed reducers, Falk Corp.; Rosin size emulsifier, Hercules Powder Co.; Forklifts, Clark Equipment Co.; Bridge cranes, American Crane & Hoist.

FINISHING—Cutters, Hamblet Machine Co.; Trimmers, Harris-Seybold; Materials handling system in trimming, packaging sec-Machine Co.; Compression strapping station, Signode Steel Strapping Co.; 60 in. rewinder, Kidder Press Co. tion, American Mfg. Co.; Automatic carton sealer, Southworth

OTHER—Boiler water conditioning, Pfaudler Permutit Inc.



WATER CYCLE of a pulp and paper mill. Intake is from stream at right. Water is treated, used in mill processes and services, and then effluent is discharged to clarifier (center) for removal of solids. Clarified water goes to lagoons (left) for final settling out of solids before being returned to stream.

Water Shortage Forecasts

By DR. JOHN G. STRANGE, President, The Institute of Paper Chemistry

THE SUBJECT OF WATER has become so thoroughly aired and dramatized that we are in danger of developing a neurosis about it. I hope this will not come to pass because it would add another emotional dimension to a problem which already has so many facets and is so complex that it will demand our sober and continuing attention for a good many years.

At one time the issues involved in the supply and use of water were primarily technical or professional in character. Although some of them may be far from easy to solve, the technological problems are relatively straightforward. The real problems are those that involve policy, principle, concept and equity.

Stream sanitation and waste disposal, important as they may be, are merely aspects, and perhaps one should say qualitative aspects, of the larger question of how we are to manage and utilize our economy's most important, and in many ways most critical, natural resource.

There is some danger in approaching stream pollution as an isolated subject, because whatever we may discuss or decide will have a bearing on the general water picture and consequently on any rationale that we may develop.

Total world water supply is a stable quantity. We can change its position and availability, and we can affect its form and quality temporarily, but there is little that we can do to expand or decrease the supply. The steady circulation of water from the earth's mantle into the atmosphere and back again, the hydrologic cycle, is a permanent phenomenon, and although we may tamper with this cycle and change its manifestations and effects, the universal factors are immutable.

The U.S. has an average rainfall of approximately 30 inches per year. Of this, around 22 inches, or over 70 per cent, is returned rather promptly to the atmosphere through evaporation and transpiration. The remainder either finds its way into streams and ultimately runs into oceans, or it soaks into the ground to feed the vast reservoirs under our feet.

Our supply of water for agricultural, industrial and civic purposes comes principally from the "run-off" and ground water phases of the cycle. These amount to roughly 1,200 billion gallons per day, or about four times the volume of water we are presently using.

Unfortunately, however, this generalized picture tends to bury in the shallow grave of averages the fact that water is in critically short supply in certain parts of the country and that additional shortages face us in many other localities, including some which historically have enjoyed surpluses. These shortages are caused by expanding population, by growing needs of industry, and by agriculture's increasing use of irrigation.

Water is our most broadly used resource; it is vital to all segments of our economy. There will not be enough for unbridled use; it is thus becoming increasingly urgent that we improve the position and quality of the supply and mechanisms for allocating its use.

It is only in comparatively recent years that industry has become an important user of water. At the beginning of this century, industry was responsible for a very small percentage of the water intake. In 1950 the figure was 35 per cent; today it is pushing 50 per cent. In another 20 years industry may be using as much as two-thirds of all the water consumed.

Industry's needs have mushroomed but too many people still approach the water problem, and conservation in general, from the perspective of an agrarian society. This can lead to serious and costly mistakes, insofar as both legislation and engineering projects are concerned.

To understand the essential differences between agrarian and industrial needs it is necessary, first, to distinguish between "consumption" and "use" of water. Water is never con-

Are Called 'Fanciful'

sumed in the ultimate sense. From a hydrologic standpoint, however, it is regarded as having been consumed when it is sent back to the atmosphere rather than released to the streams or into the ground where others may use it. On this basis, it is readily apparent that agriculture is by all odds the largest "consumer" of water and that industry actually consumes very little. Perhaps as much as two-thirds of the water used in irrigation is "consumed," compared with an average of less than 10 per cent on the part of industry.

Second, there are certain kinds of water that are not suited for irrigation, but the limitations of condition and quality are much more severe in the case of industry. As technology advances, industry will become increasingly dependent on the character of the water it uses.

Third, in most parts of the country the agrarian needs for water are highly seasonal whereas industrial needs are more predictable, and correlatively, that any substantial interference with a continuous supply would have disastrous consequences.

Summing up, an agrarian economy is primarily interested in the transportation and storage of water for its timely use. An industrial economy is more demanding in that its requirements are continuous, and they involve the concepts of quality and reuse, as well as positioning and storage. In our local, state and national approaches to the management and development of watersheds and river basins, it is imperative that we recognize and reconcile these differences.

As industry emerges as the principal user of water, it automatically assumes several important responsibilities. These are the prudent and effective handling of the water it takes in, and reasonable treatment of the water it releases. Exactly what constitutes prudent use and adequate treatment of the discharge is not an easy question to answer.

Industry's responsibility for the condition and quality of its discharged water involves three major considerations. These are: protection of public health; maintenance of wildlife and recreational facilities; suitability and cost of released water to subsequent users. Most of what we read or hear about discharges is concerned with the first two, public health and wildlife. And, historically, there is considerable justification for this. Without intending to minimize either of these two matters, however, the future will disclose that the most vexing problems will be those involving the suitability of discharged water for use in the industrial complex.

The issue of public health is straightforward. Certainly, any discharges that clearly and actively threaten public health should not be tolerated. The relation of industrial discharges, or any kind of pollution, to wildlife and recreation is much less straightforward.

The spread of municipalities and industrial areas has stimulated an almost universal concern over the integrity and conservation of wilderness areas. Shorter working hours and longer vacations have released an increasing number of refugees from pavement and urban congestion to the countryside and recreational spots. One does not have to be a sportsman or a naturalist to understand the importance of conserving these facilities.

In our dedication to these causes, however, we should not impose measures and restrictions on agriculture and industry that are more severe than nature imposes.

Our efforts to improve the compatibility of nature and the effects of a dynamic urbanized, industrialized society should proceed in accordance with programs and regulations that will encourage and continuously stimulate progress but that will not exceed existing technical abilities or unduly jeopardize the competitive status of all the elements involved.

This leads to the third aspect of discharged waters—their suitability for subsequent users. Here are found some of our most interesting and difficult problems. Underlying these problems is the doctrine of multiple use that was eloquently stated by Justice Oliver Wendell Holmes when he said:

Author is expert on water problems

DR. JOHN G. STRANGE, speaking at an industry day luncheon at the recent Water Pollution Control Federation conference at Milwaukee, took sharp issue with the recent report of the Senate Select Committee on National Water Resources. (The report is the basis of the new law that empowers the federal government to act in purely state pollution matters.)

This article is substantially the complete text of Dr. Strange's address.

It is the second important statement by Dr. Strange to be published by PULP & PAPER on what is perhaps the most vital problem facing the industry. The first was in an article headlined "U.S. Water Problems Grow" in April, 1958.

"A river is more than an amenity. It is a way of life that must be rationed among those who have power over it." In other words, it is both unreasonable and improper to limit a given waterway to a single use. A stream should contribute its service to as many phases of the surrounding economy as it can.

It is one thing to profess the doctrine of multiple use, and it is still another thing to put it to work. Generalities are often frustrating, and their implementation ordinarily requires the development of more precise definitions, supported by a working body of knowledge. Further progress in the complementary use of water will thus depend substantially on technical advantages and the exchange of experiences within and among both industries and other interested bodies.

The essential challenge is to discover and evolve these relationships with the help of advancing technology and within equity law. I because any effort to legislate or engineer the "big answer" would not only be abortive, but would also violate the ethical basis of authentic conservation, which strives to reserve as much flexibility as possible for future generations.

We might now take a brief look at the magnitude of what faces us with particular reference to the pulp and paper industry.

In the past several years there have been at least five major studies of this country's present and future water requirements. The latest, and in many ways most ambitious of these surveys, is that of the Senate Select Committee on National Water Resources, with the assistance of Resources For The Future, Inc. This report divides the country into 22 water resource regions and develops an analytical model for anticipating the supply and demand for water in each for the target years of 1980 and 2000.

The results are staggering, a doubling of our needs by 1980 and a tripling by 2000. Although the Committee is careful to say that "the main significance of the projection is not its use as a predictive device but its use as a stimulant to systematic thought and planning," I think it is incumbent on all of us to take a hard look at the figures. They may serve as the basis for action by regulatory and political bodies.

The treatment of the pulp and paper industry is, to say the least, both naive and fanciful.

The report predicts that in 2000 we shall be making seven times as much paper as we now turn out and that our withdrawal of water will be seven and one-half times its present level. This means, among other things, that the pulp and paper industry will be the second largest industrial user of water; that its intake will be in excess of all of the municipalities put together; and that it will be responsible for over 16,000 billion gallons per year, or roughly five per cent of the national water requirements for all purposes.

When one digs into the postulations which have led to these forecasts, he becomes quite confused. Long range predictions should be a skillful mixture of experience and realistic anticipation.

The forecast assumes, for example, that there will be no improvement in manpower productivity, whereas in the last 14 years output-per-man-hour has increased by 65 per cent. The forecast implies that the pollution load of the paper industry will be proportional to its growth in production, whereas in the last 17 years the industry has reduced average rate of its pollution by at least 50 per cent. The forecast assumes that there will be a linear relationship between the amount of paper produced and the wood necessary for its production, whereas experience discloses that through a combination of higher pulping yields and a reduction in the weight of certain major grades of paper and paperboard the industry has, in effect, saved the annual harvest from 16 million acres of this country's most productive forest lands.

A sixfold increase in gross production means, incidentally, that the industry is expected to grow at a much faster rate than our national population and at a rate significantly above that of the general economy. Now, although I am enthusiastic about new uses for paper, I cannot see how they will nearly quadruple in the next 40 years in the face of other assumptions made by the Committee.

This kind of arithmetic just doesn't make sense. In short, if the industry makes this much paper in the year 2000, it will do so with less people, less wood, and far less water than the report indicates.

One might say that all of this is merely a quibble over statistics and that the problem of a short supply of satisfactory water remains essentially unchanged. On the contrary, it is imperative that we be alerted to what lies ahead, but overstatement can be just as serious, if not more so, than understatement. As the President's Water Resources Policy Commission said a few years ago: "Once they are completed, major water control structures can be altered only with difficulty, or not at all. . . . There is a sobering finality in the construction of a river basin development.

It seems to me that we must do more than merely extrapolate our present needs and programs. If we stop at this point, if we apply the stagnation theory to industry and other large users of water, or if we adopt the monastic approach to wilderness areas—we are passively assuming that all of the basic policies have been settled, that we are already on the most effective and sensible course, and that the primary problem is one of ways and means. These would be tragic assumptions because there is rather good evidence that the job need not be quite as formidable or as expensive as some people claim.

The industry's unusual position in the national water scene deserves comment. Although it is true that the total supply of water is a more-or-less fixed quantity, there is a great deal that can be done to increase the effective supply. Multiple use, with its related responsibility for waste treatment, can be a tremendously important way of accomplishing this, but it is only one way. Obviously, we must do a better job of intercepting precipitation and equalizing the run-off. And this involves more than impounding by dams and reservoirs. It involves, above all, intelligent land management, because land management and water management are really different sides of the same coin.

The future of the pulp and paper industry is substantially dependent on the protection and extension of forest lands. And forests are one of the most effective covers for minimizing soil and water losses. The paper industry has made tremendous strides in recent decades in forestry practices. Today the industry owns and operates nearly 50 thousand square miles of forest lands, and average run-off from these lands amounts to more than seven times the volume of water that the industry presently uses or withdraws.

Thus, our role as a steward of water is even more important than our role as a user, and we take our place at the public water trough not so much as a seeker but as a provider. The corollary to this is that we have a particular concern with this country's evolving water policies and therefore are obliged to play a prominent part in the many discussions and studies that will eventually shape these policies. ■

Speedy test results at Ecusta

PHYSICAL LABORATORY where some 36 different tests are made on Ecusta lightweight papers, ranging from cigaret and lightweight printing papers to carbonizing tissue.

BETA RAY PROFILERS check uniformity of basis weight and sheet caliper.

Pisgah Forest, N. C. WITHIN MINUTES samples of production from ten Fourdriniers are tested and returned to critical points at the Ecusta paper operations of Olin Mathieson Chemical Corp. here. Heart of the new quality control laboratories, which occupy some 5,500 sq. ft. of space, is an extensive pneumatic tube conveying system. Its longest run is 1,170 ft.

In the physical testing laboratory, cigaret papers are tested for porosity, burning rate and wet strength, as well as opacity, weight, thickness and strength. Lightweight printing papers are checked for brightness, tear, printability, folding strength and stiffness; carbonizing tissues for pin holes, bursting strength and ink spread.

The print testing lab duplicates many conditions found in printing plants and can test under a wide range of humidities and temperatures.

Tests, such as those for weight, thickness, tensile, stretch, filler, porosity, opacity, brightness, pick, mullen and tear, are run according to TAPPI standards procedures. Four unique tests have been devised by Ecusta. They determine burning rate and wet tensile of cigaret papers, and evaluate printing papers for ink receptivity, resistance to dusting. ■

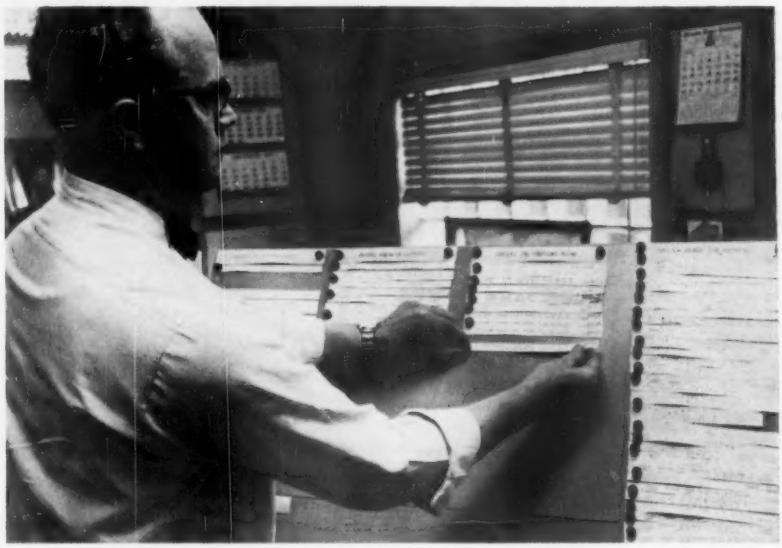
PNEUMATIC TUBE conveyor speeds test results to operators in 8 minutes.

CIGARET PAPERS are inspected for general appearance and formation as bobbin is moved over light.

BURNING RATE of cigaret paper is important, and test determines the best paper for each tobacco blend.

Problem: Scheduling multi-order inventory and production

SMALL MAGNETS help keep board neat for Ross F. Riley, prod. mgr.



ORDER MOVED on board by J. Wayne Morrow, paper mill superintendent, corresponds to and keeps tabs on order in plant.

Location: Newton Falls Paper Mill Inc., Newton Falls, N.Y.

Order scheduling can produce knotty problems of communications and logistics in the mill having many production changes daily. When order tracers are ineffective because of their bulk or because they are poorly organized, one result is the "misplaced order."

Newton Falls Paper Mill, which had run up against this problem, has solved it with a "magnetic" scheduling board. Management now can pinpoint orders from time received at the mill until time shipped to the customer. Cost is minimal, since only magnets need be purchased.

Operation is simple and highly effective, says Newton Falls management. As orders come into the mill, they are typed, mimeographed, cut into strips about ¾ in. deep and 6 in. long, and "held" with small magnets on an oilcloth-covered metal board.

As the order moves through production stages in the mill, corresponding shifts in category are made to the mimeographed order on the board see photos). Orders that have traveled through one stage are moved to the bottom of the next category, eventually are moved up that category, and so on. Board categories at Newton Falls are: in coating plant, ahead of calenders, ahead of rewinders, ahead of cutters, in finishing room, and ready for shipping. Two panels in position above the main scheduling board are carried to production areas as the first step in checking progress of an order.

At Newton Falls, two of the "magnetic" order boards have been placed in the superintendent's office, and one each has been located in the offices of the production manager and accounting. By cross-checking these different boards ,further assurance of efficient order handling is gained.

Use of magnets saves time and is safer compared to use of thumbtacks on similar cork schedule boards. Magnets can be shifted quickly—without broken nails or punctured skin, says Newton Falls.

Magnets used by Newton Falls are ¾ in. by ½ in. diameter. A larger size had been used but was found to be too cumbersome. The board, and an easel or a stand on which to mount it, can be fashioned out of scrap materials available in most mill shops.

Supplier of the "button-type" magnets to Newton Falls is General Hardware Mfg. Co., New York 13, N.Y.

Problem: Stock cleaning 700 tpd of kraft pulp

Location: Potlatch Forests, Inc., Lewiston, Idaho

One of the world's largest (361) systems of Bauer No. 606 Centri-Cleaners has been installed at this mill to get 650-700 tpd of especially clean brown kraft pulp. Despite size of the system savings have resulted over customary installations because of an unusual pumping system to the primary refiners.

The 6-in. cleaners are located after the rotary screens and before the brown stock deckers. Of the 361 cleaners in the system, 290 No. 606 primary cleaners are operating at 5% consistency, according to the company. Sixty No. 607 secondary cleaners are giving 35% consistency, and 11 additional No. 607 tertiary cleaners are maintaining 25% consistency.

Only pulp from primary cleaners is accepted. Pulp from secondary and tertiary cleaners is recirculated through primary cleaners. All cleaners have ceramic lower cones.

Pumping system to the primary cleaners includes a 1,000-hp Terry steam turbine with 600 psi at inlet (750 F.) and 170 psi at exhaust. The turbine drives a 27,000-gpm Goulds pump at 150-ft. head. Stock is pumped to the secondary cleaners by an Allis-Chalmers 12 by 10 type, 200-hp SG pump at 140-ft. head driven by a 1,760-rpm motor. A 1,400-gpm A-C pump, 8 by 6 type SI, at 140-ft. head and 75 hp, pumps stock to the tertiary cleaners.

Task Force Probes Mill Injuries

New York

THREE NEW WINDER GUARDS have been designed and accepted as standard for the paper industry by a special task force, set up by the Safety Committee of American Paper and Pulp Assn. to study the type and number of injuries that have been taking place in paper mills.

The task force, of safety and production supervisors, industry engineers and machinery manufacturers, determined that well-engineered guards were needed throughout the paper mill and decided to cover each piece of machinery in the mill step by step and, where necessary and practical, to design guards. Machinery manufacturers agreed that such standard guards would be made available on all new equipment or would be built and installed on existing machines.

Accidents on winders and rewinders was the first area studied: types of accidents, reasons for happening, how they occurred, department in which they took place, machinery that was responsible, types of injuries that resulted. It was concluded that winders and rewinders were one of the areas in paper mills that had greater injury frequency rates.

Investigation showed that most mills throughout the years had designed guards ranging from complicated machinery to plain sheetmetal covers, and most homemade guards were inoperative more than they were operative. Some "gerry-built" machines were more of a hazard than a true safety factor because they implied a safety factor that really didn't exist.

It was found that 50 per cent of the companies reporting believed the operator must be able to feel the roll as it is building up.

As a result of the study, the task force designed three standard types of guards: (1) The full barrier type, which the task force believes is the safest; (2) The nip guard; (3) The semi-barrier type.

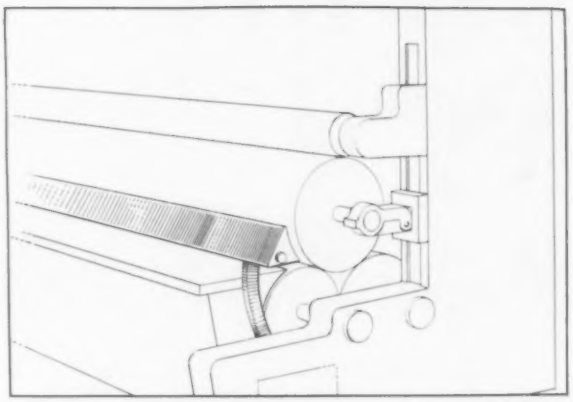
Guards are designed to be locked in. The machine can run only at jog or start-up speed with the guard up.

The nip guard permits full access to the roll at all times. Designing and engineering problems are more difficult with this nip than with the other two types, basically because of the need to install linkage and cams to move the guard in front of the roll without marking the paper and still maintain close enough tolerance between guard and roll to keep fingers out.

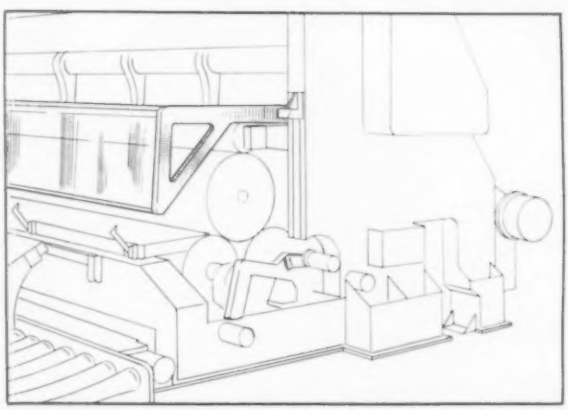
The semi-barrier guard is not considered to be as efficient as the other two types.

The program for release of the designs was arranged in October. Each machinery manufacturer will draw up a blueprint of a full barrier guard to fit his equipment. Schematic drawings of installation details will accompany the blueprint, so that in the near future each mill in APPA's safety program will receive these designs, together with complete information on the other two types for which drawings are not yet available. However, each manufacturer has his own design of the other two types.

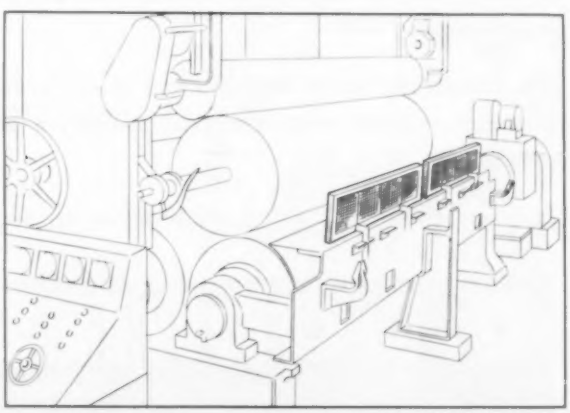
Major insurance carriers throughout the industry will also receive this information, and they have indicated that, wherever possible, they will recommend that clients use one of the three types. ■



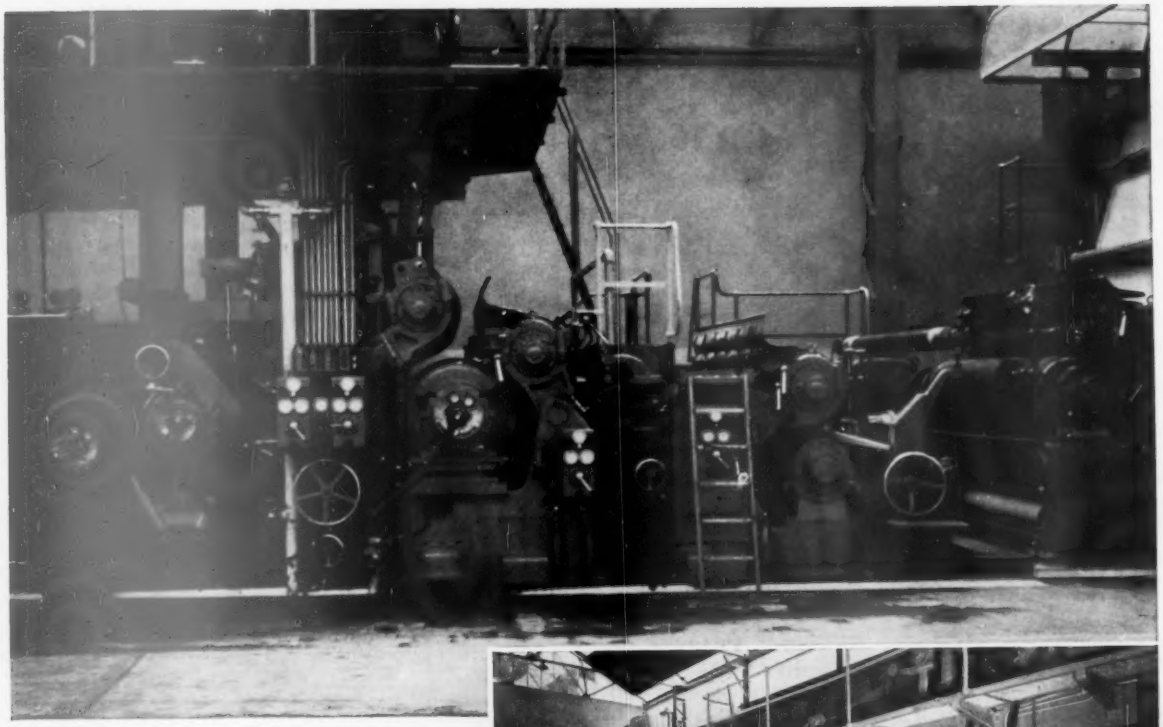
NIP GUARD PERMITS full access to the roll at all times. A good barrier guard, its design and engineering problems are difficult.

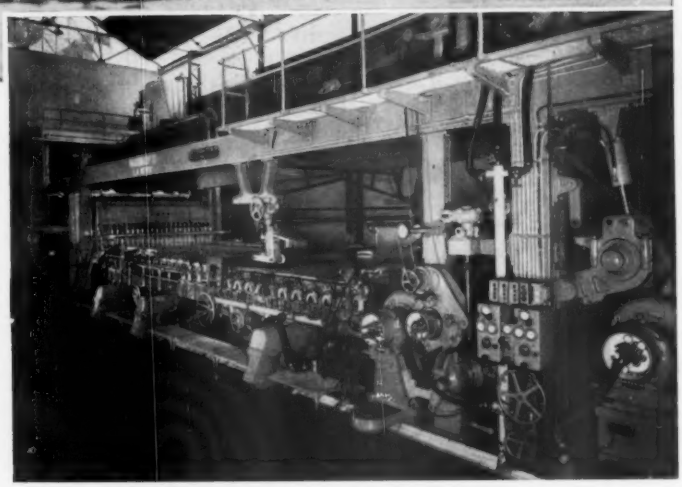


FULL BARRIER GUARDS are considered to be the safest type. Manufacturers are now preparing drawings of it for their own equipment.



SEMI-BARRIER TYPE guard is not considered to be as efficient as other types, but allows operator to feel roll while machine is in production.





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The illustrations show the wire and press sections of a special machine which produces thin paper at high speeds.

Technical details will gladly be supplied on demand.

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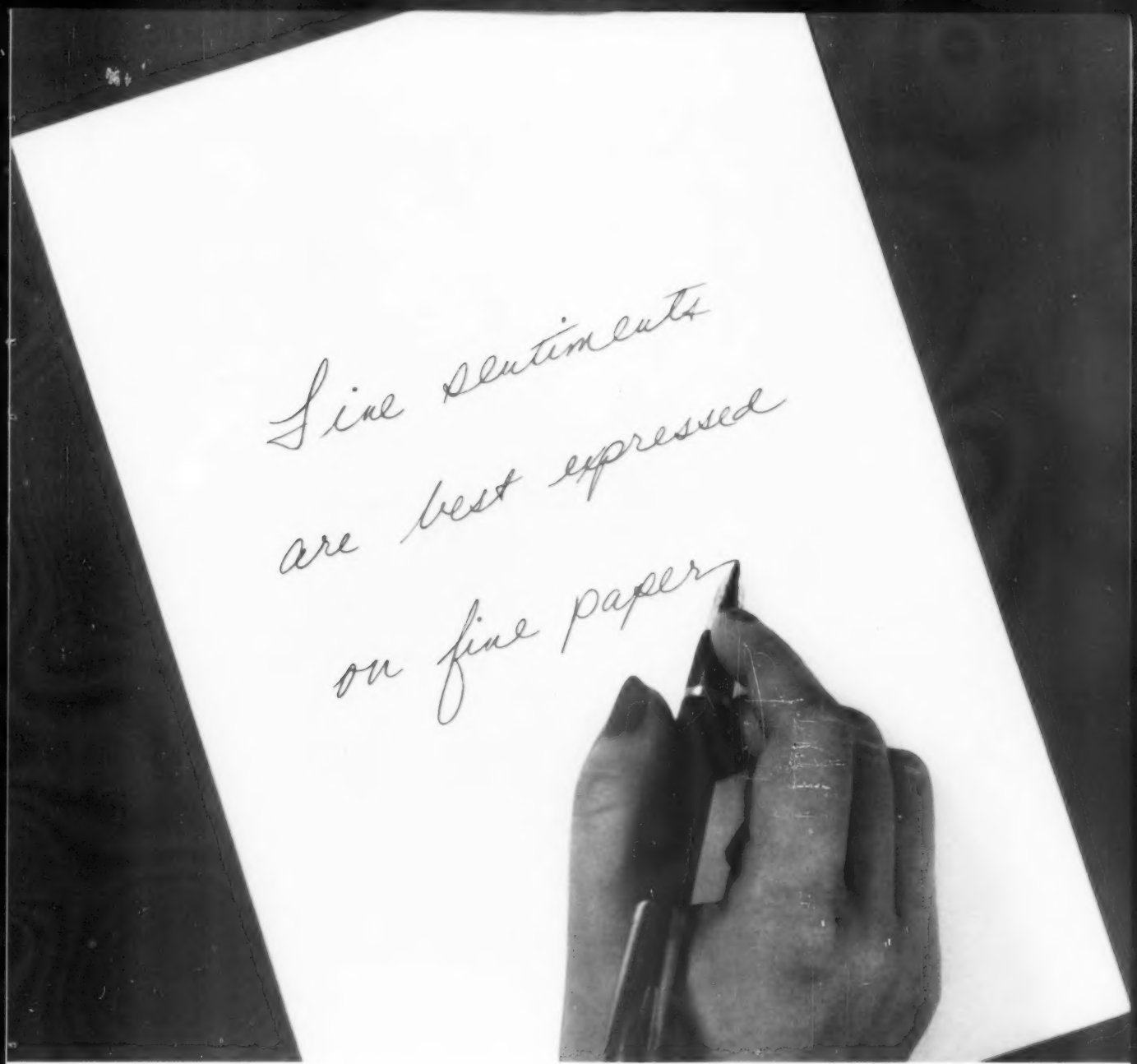

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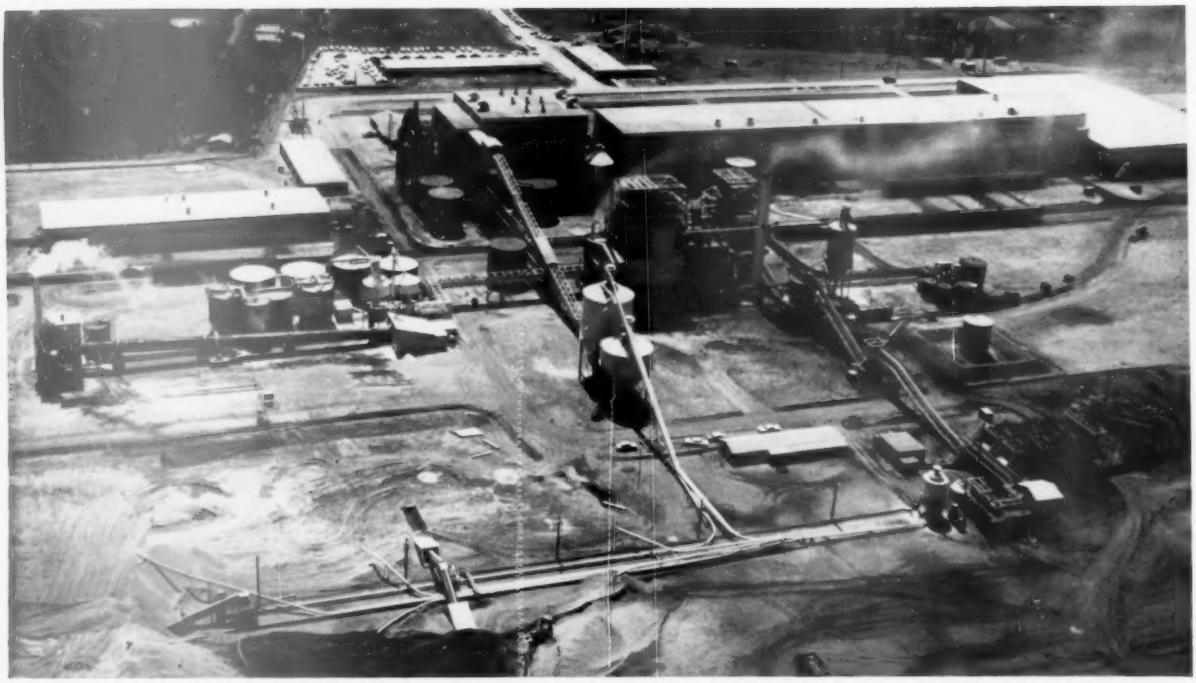
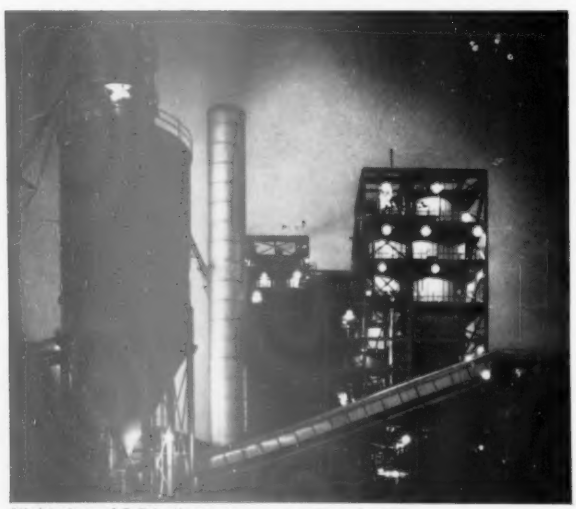


The new Tennessee River Mill, near Counce, Tenn. Note outdoor-type C-E boilers (upper center). The mill was planned and specified and major equipment purchased by the Tennessee River Pulp and Paper organization and constructed by the M. W. Kellogg Company with H. A. Simons (International) Ltd., consulting engineers.

C-E provides all steam for new, record-breaking

TENNESSEE RIVER MILL

Record-breaking in many ways, Tennessee River Pulp and Paper Co.'s new 500 ton/day kraft linerboard mill has one of the most ideal locations in the U.S.—near abundant supplies of water, pine and hardwood, and a natural gas pipe line. The mill's recovery and bark-power boilers are the first in the industry to employ full outdoor construction. • In keeping with their high engineering standards, the Tennessee River Pulp and Paper organization turned to Combustion Engineering for advanced-design steam generating equipment. This consists of a chemical recovery unit designed to burn 1,250,000 lb of dry solids a day, and a 300,000 lb/hr steam generator burning bark, gas and oil (with provision for future pulverized coal firing). Units operate at 600 psi and 750F. • C-E has long been a leading supplier of boilers for the paper industry—was the first to break the recovery unit "capacity barrier" and exceed 500 tons in capacity (an 800 ton C-E unit is now on order). For information on boiler designs for any pressure, temperature or capacity—for any fuel or combination of fuels... call your local C-E office or write the Paper Mill Division in Windsor. • ***Ask for the new catalog: "C-E Equipment for the Pulp and Paper Industry."***



Night view of C-E boilers—recovery unit at the left, bark burner at the right.

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ALBANY FELT
SALES ENGINEER

Felts that perform ideally result from built-in qualities essential to each papermaking machine and each papermaker's objectives. That's why each Albany felt is custom designed to assure performance on the specific machine and specific position for which it was manufactured. That's why Albany Felt Sales and Service Engineers seek every possible bit of knowledge about your machines — their characteristics, felt performance reports, and each of the factors which guide the design of your future felts.

Each design is aimed at building-in those features which provide the right water removal, the exact finish qualities, and the longest possible felt life.

Proper design of Albany felts is a principal contributor to the superior felt performance you have every right to expect.

AF

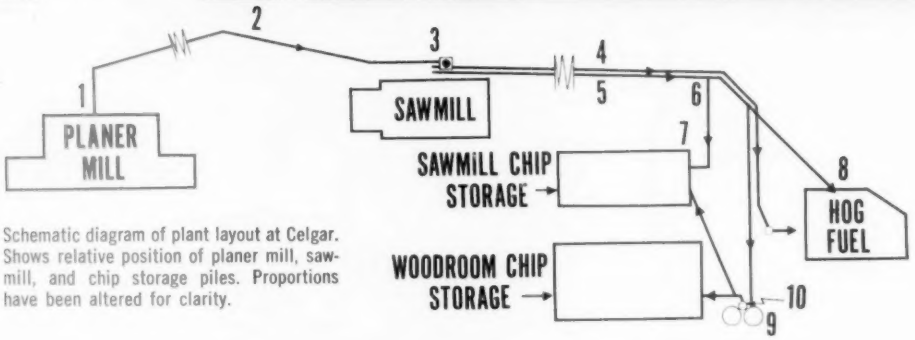
ALBANY FELT COMPANY

N. Monmouth, Maine · Hoosick Falls, N.Y. · St. Stephen, S.C. · Cowansville, Quebec · Cuautitlan, Mexico

ALBANY, N.Y.

RADER at CELGAR

1. Blower and feeder at planer mill.
2. Pneumatic line from planer mill to surge bin at sawmill. Capacity 43 tons per hour. Length 1700 ft.
3. Two blowers and feeders at sawmill.
4. Pneumatic line for sawmill waste and planer waste. Capacity 70 tons per hour. Length 2200 feet.
5. Pneumatic line for wood chips. Capacity 60 tons per tour. Length 2300 feet.
6. Three-way automatic valve diverting chips to:
7. Sawmill chip storage.
8. Hog fuel storage.
9. Silo at pulp mill.
10. Blower and feeder at pulp mill sending chips to sawmill chip storage, woodroom chip storage and chip silos.



Schematic diagram of plant layout at Celgar. Shows relative position of planer mill, sawmill, and chip storage piles. Proportions have been altered for clarity.

Flexibility Is Keynote of Rader Installation at Celgar

A complex Rader pneumatic installation at the pulp mill and new sawmill of Celgar Limited at Castlegar, B. C., provides a continuous flow of chips and hog fuel over considerable distances, to several destinations, and with a minimum of human attention.

Planer waste is blown from the planer mill to a surge bin at the sawmill, which also receives the sawmill waste; from there the material is blown to the pulp mill's hog fuel storage.

Chips are carried on a second line from the sawmill to a three-way valve near the pulp mill. One discharge line leads to sawmill chip storage; the second leads to storage silos at the pulp mill, while the third leads to the hog fuel storage pile.

The systems described above have just been completed. Another system at the pulp mill, built earlier, blows chips either to the silos, or to the sawmill chip or woodroom chip storage piles.

Two other independent Rader systems at Celgar perform special missions. One handles knots and reject materials, which are blown to a chip bin for re-use, or to a fuel storage pile; another unloads limestone by suction from rail cars and transports it to a storage silo.

* * *

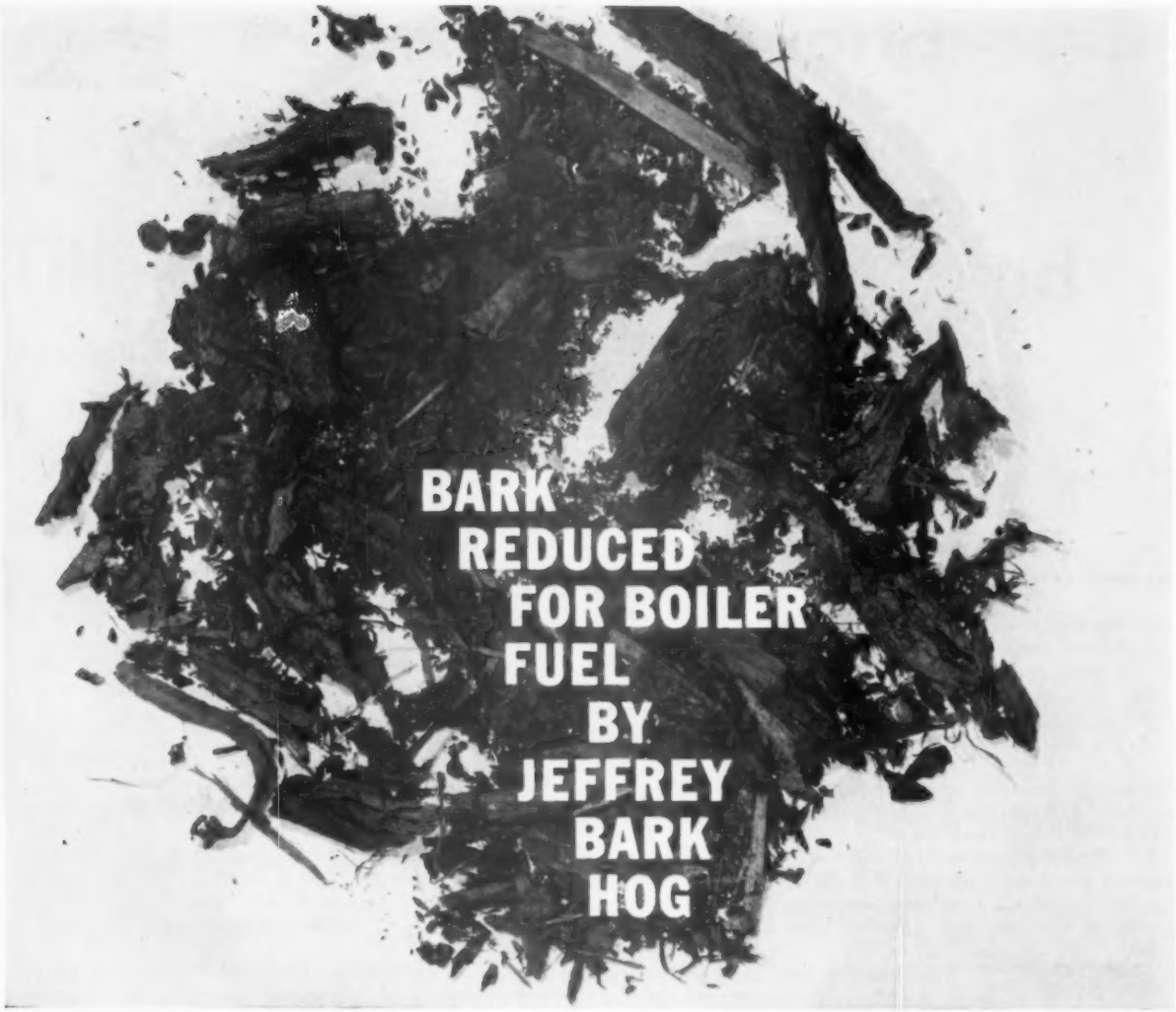
Rader engineers can custom-design pneumatic conveying systems for any pattern of chip flow, and for moving many other materials. Write or phone for information.

High Pressure Pneumatic Conveying Equipment

RADER PNEUMATICS

1739 N. E. 42nd Ave. • Portland 13, Oregon

BOSTON EUREKA, CALIF. LOCKPORT, ILL. LOS ANGELES
MEMPHIS SYRACUSE VANCOUVER, B.C. PEMBROKE, ONT.



A belt conveyor carries bark from the debarkers at Riegel Paper Co., Acme, North Carolina, and dumps it into this Jeffrey 42″ x 48″ Type B Bark Hog. There the bark is reduced to desired size, and then carried to the boiler room by air—a money-saving combination of material preparation and handling.

Jeffrey Bark Hogs, working in dozens of mills around the world, are successfully handling poplar, elm, oak, maple and pine. In some cases, the moisture content of these materials runs as high as 45%, a tough test for a Hog.

On your reduction problems, ask Jeffrey for recommendations on equipment to do the barking, together with feeders and conveyors for handling your materials. For such help, write The Jeffrey Manufacturing Company, 809 North Fourth Street, Columbus 16, Ohio.

Jeffrey Bark Hog at Riegel Paper Company, Acme, North Carolina.

If it's conveyed, processed or mined, it's a job for Jeffrey. JEFFREY

LOGGER CUTS LOADING TIME & MAN-HOURS WITH 955H

Loading time has been cut right down the middle—labor costs reduced by two men—with a Cat 955H.

W. S. Sheffield, a contract logger from Madison, Florida, gives us the facts. "Our current quota is 1000 tons a week of tree-length pulpwood. We used to use the A-frame to load—then we decided to switch to a tractor-loader. We had a demonstration of a 955H and a cheaper, slightly smaller loader. The 955 was clearly more productive and easier operating but we got a real good purchase-lease deal on the other loader and took it—for a month. But it just didn't measure up. We sent it back and took the 955H.

"The Cat loader can handle the production in half the time of the other machine. We load 9 to 10 cords—5500 pounds per cord—on a truck in about 20 minutes. We've already added another skidding tractor and will probably add more trucks. This way we can handle our present quota in less time and we've got the loader to handle a sizable production increase.

"You can't beat that Cat power shift transmission for fast cycles," adds Sheffield. And that's fact, not enthusiasm. Split-second, single-lever shifting—with fingertip control—explains how the 955H slashes loading time in half. Live action hydraulics help, giving the 955H faster lifting speed and greater lifting capacity without stealing power from the tracks.

Sheffield figures the 955H's heavy-duty undercarriage will help to keep his maintenance costs down. Built to stand up in the toughest material—even abrasive Florida sand—it has lifetime lubricated rollers that require no lubrication until rebuilding, eliminate greasing.

Have you investigated the economies of tree-length harvesting with the 955H? Your Caterpillar Dealer will be glad to show you this great log loader in action.

Caterpillar Tractor Co., General Offices, Peoria, Illinois, U. S. A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

Tillamook Burn is transformed

Desolated by three major fires, the 355,000-acre area in Oregon's Coast Range promises once again to be lush, productive pulpwood and timber land

By L.H.B.

TILLAMOOK BURN—a 555-sq.-mi., fire-blackened wasteland little more than a decade ago—is growing trees again under the expert, coaxing, green thumbs of state, industry and private groups.

The "burn" covers approximately 355,000 acres in Oregon's Coast Range. It lies in four counties, with most of it in Tillamook County. Before the fires the area was prime timberland. In 1933, a blaze destroyed 240,000 acres. Then, in 1939 and 1945, fire swept the remaining acreage. Total volume of fire-killed timber has been estimated at 12-13 billion bf.

Many pulp and paper men remember how the region looked after the fires. Today, trees are growing again on much of the charred land, and people point to the area as an example of how extensive reforestation of burned-over land is economically practicable.

The "burn" is being restored under a major, forest-management program.

About 4 billion feet of dead timber was salvaged by Consolidated Timber Co., an organization formed by owners of the timber who pooled their resources.

Timber still is being salvaged on a modest scale. And although it is impossible accurately to determine the total volume that has been saved, it is estimated to be approximately 8 billion feet.

Restocking is being carried out under a long-range forest rehabilitation program, which was approved by Oregon voters in 1948. The following year, the State Board of Forestry launched the program. By then, about 30,000 acres had restocked naturally. But, even though natural reseeding has continued to some extent around the "burn's" perimeter, it hasn't been extensive in recent

TILLAMOOK BURN TODAY is verdant with young trees planted under a vast rehabilitation program launched by the state and supported by private groups.

. . . How Tillamook was rehabilitated

SNAGS STAND STARKLY against backdrop of mountains after "burn" was struck by three blazes . . . .

SNAGS WERE FELLED to permit replanting and eliminate fire hazard, and usable wood was harvested . . . .

TREES WERE PLANTED by the state, aided by Oregon schoolchildren who worked on one-day projects.

years. Early surveys disclosed that 143,000 acres were suitable for restocking by aerial seeding and 75,000 acres required planting of seedlings. As of June 30 of this year, both objectives had been more than half completed. Of the acreage, 75,101 acres had been aerially seeded and 3,113 reseeded; while 41,080 had been planted by hand and 7,854 had been replanted.

Behind these accomplishments have been several other projects, which individually might be recognized as significant achievements if they were not parts of a bigger program. Millions of seedlings had to be nursery-grown for planting (over 36 million have been planted to date); cones had to be harvested from forest trees and their seeds extracted and treated for use in the nursery and for direct seeding in the "burn." More than 1.25 million snags have been felled, 189 miles of snag-free firebreaks have been completed, and a 151-mile forest road system has been built.

The program calls for completing salvage operations and minimizing fire hazards in individual areas before tree planting or seeding is undertaken.

Although most of the rehabilitation to date has been done by paid crews, significant contributions have been made by volunteers. Many groups have assisted in the reforestation. Organized tree-planting crews from schools, including those in the Portland system, have participated in one-day planting projects. Besides accounting for the actual planting of the trees, the method has developed in the boys and girls an interest in the preservation and protection of forest land. And this interest has penetrated beyond individuals—into homes and classrooms, generating an awareness of the importance of forests in entire communities.

Even selected inmates from the state penitentiary have been working on the "burn" since 1951. Of their labors, Gov. Mark O. Hatfield says, "The 'burn' has a record of helping men to grow, as well as trees." The inmates are quartered at a camp in the "burn."

During the 12-year period that ended July 1, just under $7 million was spent by the state on the rehabilitation. Most, but not all, of the money was spent on publicly-owned land. The funds are raised by bond issues, bonds being sold annually in amounts not exceeding $750,000 per year. The 15-year bonds will be paid with tax money that is raised through annual assessments by the State Tax Commission.

Seventy per cent of the "burn" is state-owned, 22 per cent is privately-owned, and the remaining 8 per cent is federal/county/municipal-owned.

Several tracts in the 78,000 acres of private holdings are owned by pulp and paper companies. A notable holding is the one purchased by Crown Zellerbach Corp. about 10 years ago.

The previous owner had been salvaging fire-killed timber for years, and CZ has accelerated this work. Between 1952 and 1959, more than 160,000 dead trees and snags were cut down. Activity was at its peak between 1953 and 1956, during which period annual take ranged from 19,940 stems a year to 52,390 a year.

CZ's objectives have been to reduce fire danger materially by ridding the tract of snags, and to salvage as much wood as is economically feasible.

In addition to reclaiming vast quantities of timber that otherwise would have been irretrievably lost, the company has brought the land under dedicated, tax-paying forest management and is now growing trees for the future. ■

Totable chipper needed for woods mobility

(From a speech by A. G. BUNKER, *Union-Bag Camp Corp., at meeting of the Northeast Technical Committee, American Pulpwood Assn., Oct. 18-19, Waterville, Me.)*

THE CHIPPER is possibly the most valuable tool we have for future wood use.

Most chippers used now in the woods are impractical because of their size, weight, and debarking limitations, and their restricted use for larger, uniform logs.

Efficient harvesting methods using minimum equipment may be just as suitable as any mechanized methods being used today, but I feel that a portable chipping unit is needed.

Such a chipper, which could be carried from tree to tree, could be used in conjunction with a harvesting machine, which we have considered building. The harvesting machine would cut small wood, stack it, and bring it to the woodyard or brow. It would be similar to the Vitfeller buncher except that it would harvest only small trees—which the larger machine can't—and it would allow faster operation and a different felling technique.

Our idea is to carry a chipper to a felled tree, to load chips onto pallets, then to bring the pallets to the brow where they could be loaded in pallet trucks. Pulpwood loaders probably could be adapted to dump the pallet load into gondolas at rail sidings. An alternate method of recovery would be to skid loaded pallets from the woods to the brow by tractor.

Unless mills have a way of separating bark from chips at the mill site, chipping cull wood will not be too successful because no debarker I know of will debark crooked, limpy wood. Chipping in the woods will help utilize this crooked and small wood that pulp mills can't handle, or which, because of its shape, can be loaded on trucks only with difficulty. But I do not see chipping in the woods as a substitute for loading larger, more uniform wood onto a truck.

I would concentrate on unitizing logs from the tree to the brow and perfecting a highly efficient truck-loading system. Chippers should be used to salvage all small wood, branches and cull wood in the forest, and, possibly, to clear land, a use now being practiced in the South.

PORTABLE CHIPPERS such as this unit being field tested on branches and tree tops, may some day fulfill need for a quality "big-wood" chipper.

Chipping pulpwood-size wood in the forest raises a problem, however. The large chippers now necessary for this operation can't be towed through the woods because of their size and weight. If, on the other hand, chippers are positioned at the brow, only the truck-loading phase is bypassed. We have found skidding to be the most expensive of the harvesting phases, so that chipping at the brow is not advantageous. In fact, it may mean that the brow is less likely to be moved—and the brow should be moved to reduce skidding lengths. It would be less costly to use a front-end loader to transfer logs onto a truck, which, in turn, could be driven to a slasher or chipper at a rail siding.

We are nowhere close to knowing the proper type of chipper to use in the woods, or what horsepower is needed to turn it. For example, a firm on the West Coast is using a 182-continuous-hp diesel hog chipper, with a spout opening of 24 in. by 21 in. The unit can chip trees up to 13 in. in diameter and even an occasional 16-in. diameter piece, if a log jammer is used to stop log flow when the chipper slows down. Our technical department says these chips compare favorably with chips made by a disc-type chipper. This drum-type, which has a large spout and a moderate-sized power plant, might possibly be used in the woods. ■

APA news briefs

(PULP & PAPER is pleased to introduce this new column, in which technical and other releases from the American Pulpwood Assn. will be reported in capsule form. The column will appear frequently, and is intended to brief readers on significant pulpwood developments that cannot be treated in detail.)

Morbark Portable Debarker
Features infeed and outfeed tables, hydraulic lift for upper stack rolls hydraulically controlled cutting shoe, and 10-in. wide cutting head . . . allows removal of jammed sticks . . . approximately 90% bark removal without excessive fiber loss. [TP-61-27]

Bombardier Muskeg "S" Tractor
Designed for snow or for wet, soft ground . . . capacity is 6,000 lbs . . . tracks are endless rubber, reinforced with steel cable . . . belts reported to last 1,000-1,500 hours . . . variety of loaders and bulldozer blades can be attached. [TP-61-23]

Bombardier Red Ram Skidder
This skidding tractor has operated in rocky Michigan area with low maintenance and long track life . . . gas and oil expenses in this project were $0.156 per cord . . . other maintenance costs are detailed. [TP-62-21]

Michigan 75 Pulpwood Logger
Reported to go into and out of the strip road without turning movement . . . strip roads can be sidetracked altogether if desired . . . weighs 16,000-17,000 lbs., depending on motor specifications . . . ground clearance is 21 in., tread is 84 in. and wheelbase is 11 ft. 1 in. [TP-61-22]

Gerou Pulpwood Trailer
Front hobbler and two fifth wheels add extra axle 9 ft. from tractor drive axle . . . retractable center axles elevate tires from road on return trips . . . recommended for long-distance highway hauls. [TP 61-24]

Gafner Iron Mule
To advance stumpage pile wood from cutter strips to landing or road . . . good traction in rough terrain . . . heavy metal pan protects underside of engine . . . twelve forward speeds, three reverse . . . Split boom swings 180° . . . estimated time from strip to landing is 22 minutes . . . about four cords an hour is estimated capacity. [TP-61-26]

"My 6-cylinder TD-6 swamp skids up to 35 cords in 8 hours"

George Sears, Mt. Pleasant, Ga.
(100% International User for 15 years)

Here's the new 55-hp TD-6 that skids up to 35 cords per 8-hr day for owner George Sears. Only the TD-6 provides maximum track-to-ground, traction-getting contact and flotation—assured by exclusive International 3-point track suspension. For production-aiding operating ease, the TD-6 has push-button direct starting—a roomy, thick-padded, foam-rubber cushioned seat—flush-deck safety—"see-all" visibility. Steering is by booster-type, cool-running "no-fade" steering clutches!

"My 6-cylinder International TD-6 is skidding up to 35 cords of pulpwood in eight hours a maximum distance of 1,500 feet—and under swamp terrain conditions," reports George Sears, Mt. Pleasant, Georgia.

"This TD-6 has more power, so is faster and is producing considerably more than my older model. My older TD-6 has worked 7½ years with an unmatchable availability record, and the lowest possible upkeep and repair cost.

"I've been a continuous 100% user of International crawlers for the past 15 years in my pulpwood operation. I continue to buy Internationals because of the job-proven performance."

Only "six" in its power class

The 55-hp TD-6 is the only crawler in its power class to give you 6-cylinder diesel power wallop and smoothness. For low upkeep and long life, this engine has International's famous tri-metal main and crankshaft bearings; file-hard, replaceable cylinder liners; and the most simple, efficient rotary-type fuel injection pump in any diesel.

The TD-6 dry-type engine clutch has a full-face sintered metal driven member—for high power-transfer efficiency and heat defiance. And new precision-sealed Dura Rollers on TD-6 tracks exclude abrasives and retain lubricant, even under extreme conditions.

Compare TD-6 production — operating and upkeep economy — working life and dealer service. Size-up new TD-6 advantages over competitive rigs. Let your International Construction Equipment Distributor demonstrate.

International® Construction Equipment

International Harvester Co.,
180 North Michigan Ave., Chicago 1, Ill.
A COMPLETE POWER PACKAGE

...this equipment is second to none"...

says R. L. LEAF, Vice President
Shawano Paper Mills, Shawano, Wisconsin

SHAWANO PAPER MILLS

MANUFACTURERS OF SPECIAL PAPERS PLAIN AND DECORATED

LAKEVIEW 8-2181
SHAWANO, WISCONSIN

September 8, 1961

Mr. R. A. Peterson, President
Valley Iron Works Corporation
Appleton, Wisconsin

Dear Mr. Peterson:

We want you to know how delighted we are with our No. 2 Yankee Fourdrinier Paper Machine. The installation of the new VALLEY Fourdrinier Section and the VALLEY modifications to the press section complete the modernization program that we have had in progress on this machine for several years. Every bit of the original machine has been replaced, and as far as we are concerned No. 2 is now a VALLEY Paper Machine. We are as pleased with the equipment installed this year as we were with your air loaded stock entrance equipment that we installed last year, and that's saying a lot.

We had saleable paper on the reel in less than thirty minutes after putting stock on the wire, and in less than ten minutes after letting down the pickup roll. We passed previous quality and production marks in the first eight hours of operation, and the continuing improvement in both quality and production since then has been extremely satisfying.

We feel that this equipment is second to none, but that is only part of the story. The service and cooperation that you have given us from the idea stage right through the present time has been truly outstanding. Everyone here at Shawano Paper Mills joins me in saying that it's been a pleasure doing business with all of you.

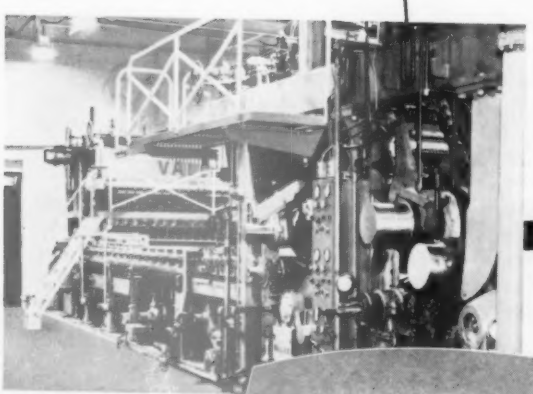
Sincerely yours

SHAWANO PAPER MILLS

Bob Leaf

Robert L. Leaf, Jr.
Vice President

RLL:DA



SHOWN HERE
AIRLOADED STOCK ENTRANCE EQUIPMENT, FOURDRINIER AND PRESS SECTION — NO. 2 PAPER MACHINE AT SHAWANO

VALLEY

VALLEY IRON WORKS CORPORATION

APPLETON, WISCONSIN
Subsidiary of Allis-Chalmers Manufacturing Co.

West Coast Representative: E. A. Berry, P.O. Box 958, Longview, Washington

Canadian Representatives: Pulp and Paper Mill Accessories Ltd., P.O. Box 850, Saint Laurent, Montreal 9, P.Q., Canada

Bright idea in paper...

Turning a paper container into a pirate ship is a fun-idea. But the idea uppermost in the minds of paper makers is producing whiter, brighter, stronger papers. Including coated paper containers, moisture-resistant enough to sail the wildest creek!

Yes, paper makers are constantly devising new ways to make paper better. And Becco is working hand-in-glove with them.

Just recently, for example, we installed the Becco Refiner Bleacher Process in three mills producing cold soda pulp. This process produces a quality pulp and, because of its simplicity, saves on actual processing costs while increasing output per unit of space.

Could your paper benefit from Hydrogen Peroxide? Becco, with more years of bleaching experience than any other H_2O_2 producer, would be happy to be of service to you. Just write us, describing your fields of interest. Address: Dept. PP-61-12.

BECCO Hydrogen Peroxide

Putting Ideas to Work

fmc

FOOD MACHINERY AND CHEMICAL CORPORATION

Becco Chemical Division

General Sales Offices:

161 EAST 42nd STREET, NEW YORK 17, N. Y.

6 CAREFULLY SELECTED Warren Fan Pumps for quality improvement program

PLANNING is the key to efficiency in any fan pump installation.

Warren application engineers, with a world of experience in *all* phases of paper/pulp pumping, help plan the most efficient type of fan pumps for installations as shown above. At the San Joaquin (California) mill of Fibreboard Paper Products Corp., there are six Warren 20-DB-22 fan pumps. Each is rated for 13,000 GPM at 39 foot head, at 555 RPM.

In addition . . .

- Shafts and bearings are designed for 24 hours-per-day duty.
- Large liquid passages permit low velocities, high efficiencies and pulseless flow.
- Impeller eye area is properly sized for low entrance velocities.
- As with all Warren Fan Pumps of this size, dual volute construction is standard.
- Parts subject to inevitable wear can be replaced economically—impeller rings, case rings and shaft sleeves.
- Ring clearances are designed to maintain high initial efficiencies.
- Top quality materials of construction are used throughout.

Warren design and application engineers overlook nothing. Conservative specific speeds and accurate head and capacity requirements are also carefully planned. And from Warren's wide range of impeller styles they select the *one* that suits the application best.

Ask for the help of a Warren application engineer . . . early in your planning. That's when true pumping economy really begins.

WARREN

CENTRIFUGAL · SCREW · RECIPROCATING · GEAR

WARREN PUMPS, INC.

WARREN, MASSACHUSETTS PEACE DALE, RHODE ISLAND

PP 46

. . . NEW EQUIPMENT

starts on p. 27 . . . the thickness and weight of these belts. "UsFlex" belts are single-ply, but do the work of four to seven-ply belts, the supplier says. The new belt requires smaller pulleys and less horsepower to operate it, and can be run at higher speeds than ordinary belts, it is claimed. High-tenacity, synthetic carcass is mildew-proof and acid-resistant.

Supplier: **United States Rubber Co., 1230 Avenue of the Americas, New York 20, N.Y.**

Reducing valves
. . . for high water pressures

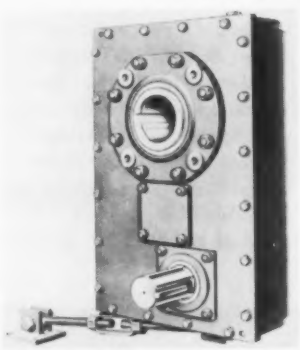
Applications: For range 5-lb. to 100-lb., with initial pressures up to 300-lb. *Advantages:* These self-contained, high-capacity water pressure reducing valves have both commercial and industrial applications.

Series 2230 features a "balanced piston" which is unaffected by wide variations in supply pressure or large differentials between initial and reduced pressure settings. Downstream pressure is more consistently maintained because of this feature, the supplier says.

Sizes are 2½-in. and 3-in. Smaller size is furnished with screwed connections, and is available with attached basket-type strainer. Larger size has flanged connections.

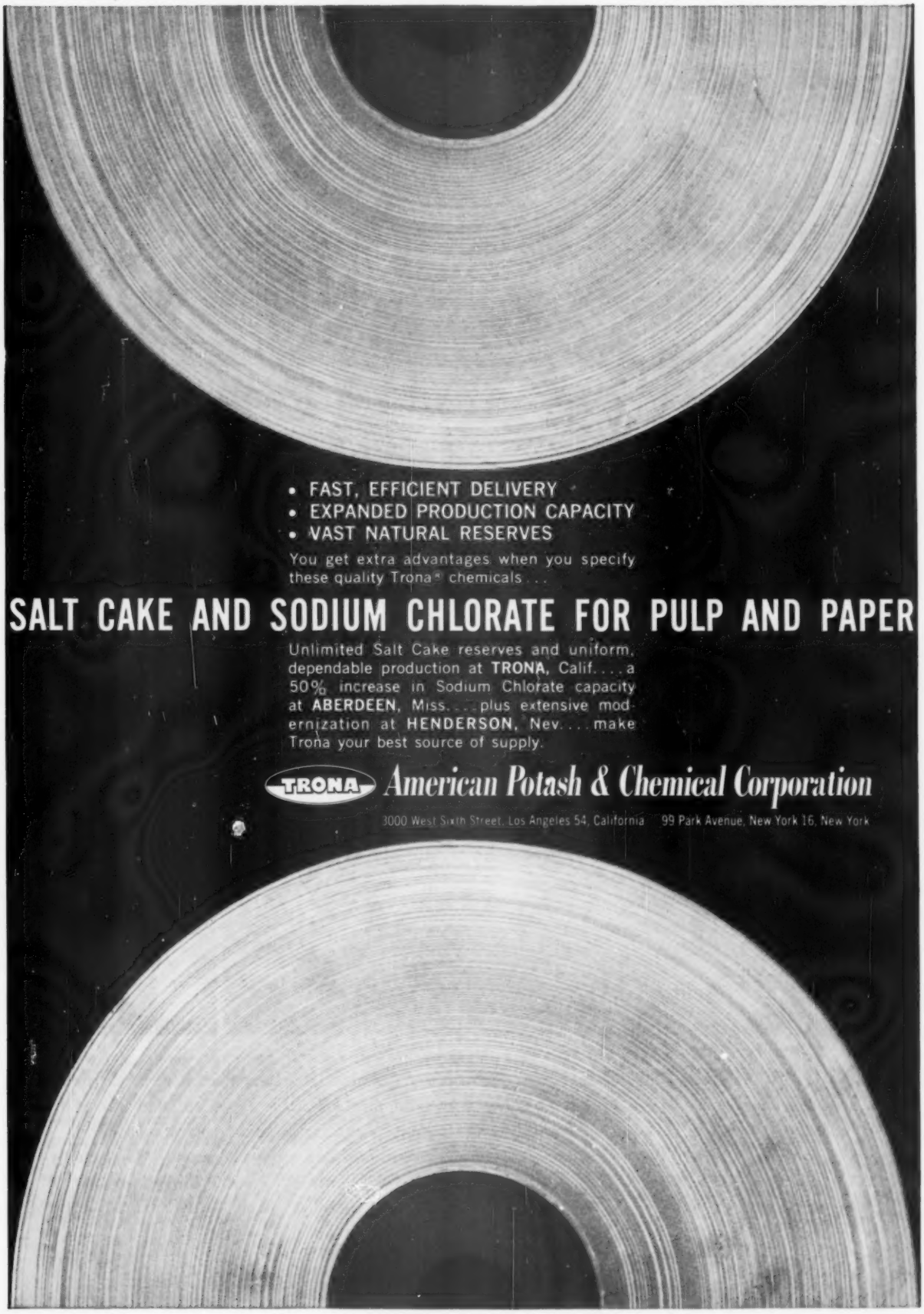
Supplier: **Watts Regulator Co., Lawrence, Mass.**

Motor drives
. . . is plastic-lined



Applications: Designed for speed ratios of 15:1 or 25:1 up to 125 hp. *Advantages:* Sizes 415 and 507 extend the supplier's line to capacities up to 225% greater than previous sizes. Output torque is up to 100,000 lb. in.

Minimum plate thickness of 1⅛ in. protects and keeps in rigid alignment the rotating elements. . . . **turn to p. 80**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• EXPANDED PRODUCTION CAPACITY
• VAST NATURAL RESERVES
You get extra advantages when you specify these quality Trona® chemicals . . .
SALT CAKE AND SODIUM CHLORATE FOR PULP AND PAPER
Unlimited Salt Cake reserves and uniform, dependable production at TRONA, Calif. . . . a 50% increase in Sodium Chlorate capacity at ABERDEEN, Miss. . . . plus extensive modernization at HENDERSON, Nev. . . . make Trona your best source of supply.
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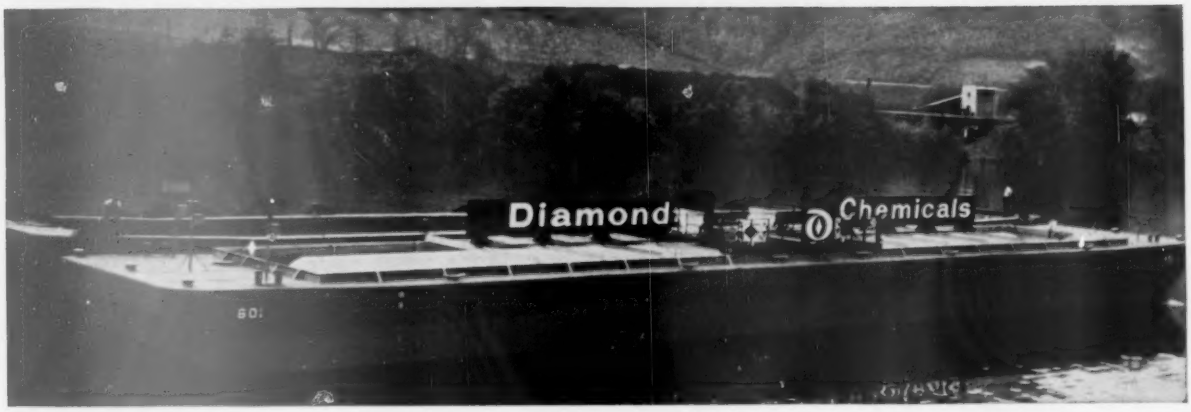
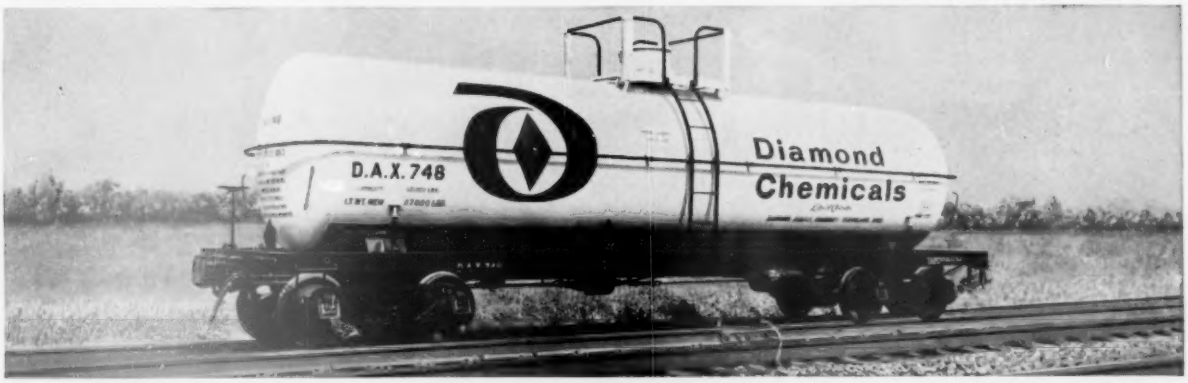
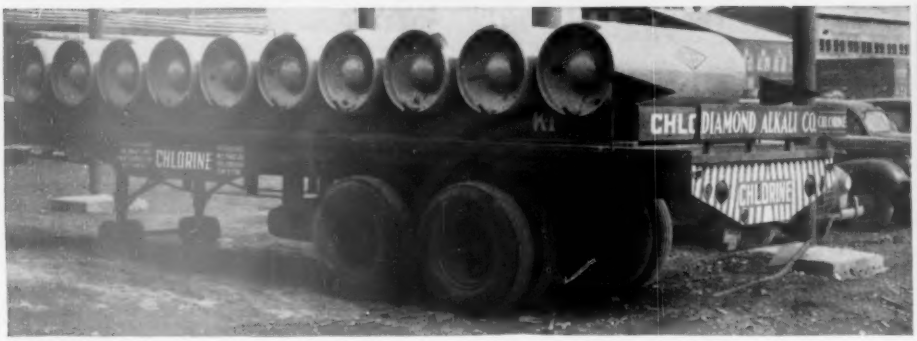
Diamond delivers the Chlorine



by inland waterway...by the bargeload



by tank cars...or by the cylinder or container



It doesn't matter how great your requirements or how small—DIAMOND delivers liquid chlorine to you at the lowest possible cost from four strategically located plants.

What's more, it's a safe delivery—and a uniform one. DIAMOND has its own producing plants, research and development laboratories, and its own shipping containers. DIAMOND offers trained technical assistance to advise on the economical use of chlorine. For the DIAMOND "Chlorine Handbook", write DIAMOND ALKALI COMPANY, 300 UNION COMMERCE BLDG., CLEVELAND 14, O.

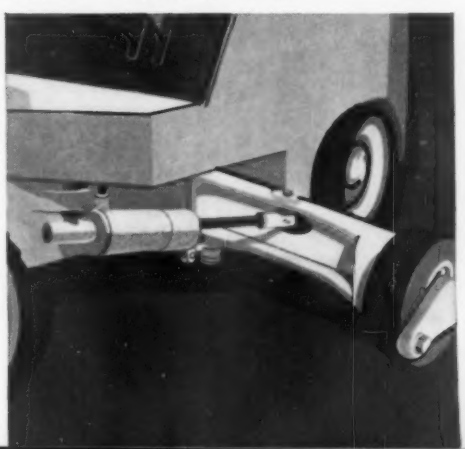
Diamond Chemicals

TOWMOTOR'S ON THE MOVE

—introducing Model 590 fork trucks with pivoting lifts that stack loads at 90° angles. Chalking up new records in narrow-aisle stacking. Widening its leadership in space utilization. Performing the jobs of three ordinary trucks. It's easier to buy a new Towmotor lift truck than to build a new warehouse. Utilize "lost" space with Towmotor fork lift trucks—made only by TOWMOTOR CORPORATION, CLEVELAND 12, OHIO.

TOWMOTOR
THE ONE-MAN-GANG®

Narrow 6-foot aisle stacking is made possible by unique hydraulic outriggers on Towmotor "Naro-Aisle-Stack" Series fork trucks (above). Its use of foot-controlled Towmostatic Drive (eliminating conventional shifting and drive mechanisms) is another key factor in engineering this unit.



NEW EQUIPMENT . . .

starts on p. 76 . . . The supplier says its helical gears transmit mechanical efficiencies of 97% to 98½% under full load. Units can be mounted on horizontal or vertical shafts with high speed shaft up or down.
Supplier: **The Falk Corp., Box 492, Milwaukee 1, Wis.**

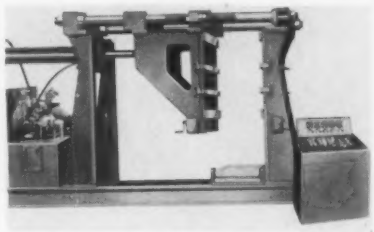
Temperature programmers
. . . have modulating control

Applications: For use when very close sensitivity of temperature is required.
Advantages: Pre-determined time-temperature patterns for heating (or refrigerating) are cut on a plastic cam which then is mounted on the face of the programmer machine. A roller arm which rides the edge of the revolving cam is activated by the cam and, in turn, activates a control mechanism.

A mercury-bulb senses process or equipment temperature. Mercury actuates a diaphragm-plunger assembly and recording pen.

Model RCSS is designed for use when two temperatures are specified as control points and when they are separated by not more than 5% of scale range. Model RCL, for control of fuel valves or relays to start and stop combustion systems or electric heater loads, is equipped with an adjustable differential switch.
Supplier: **The Partlow Corp., 555 Champion Rd., New Hartford, N. Y.**

Plastics molder
. . . is fully automated

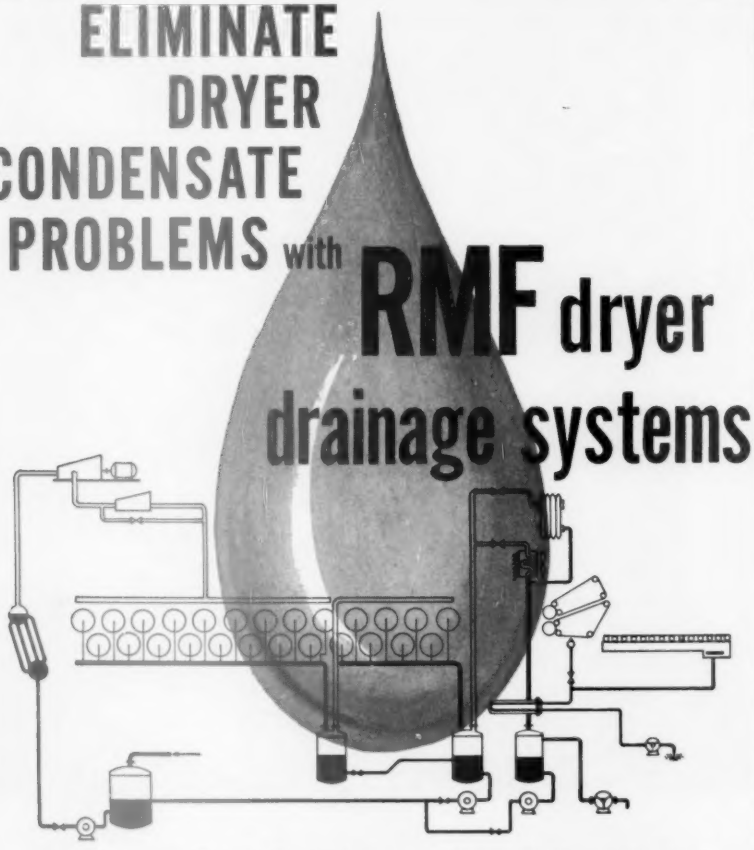


Applications: For molding polystyrene beads into foam packaging.
Advantages: The supplier says the unit can operate on 20-second molding cycles on thin-walled objects. Horizontal press has 36 in. by 48 in. mold frame area. Dry cycle for 47" maximum stroke is 17 seconds. Clamp pressure can be adjusted up to 50 tons. Depth of moldings is up to 12 in., or up to 20 in. with flange-mounted molds. Forward and return movement strokes are adjustable. Provision is made in control console for controlling side plungers on molds.
Supplier: **Champlain-Zapata Plastics Machinery, Inc., Box 883, Kulick Rd., Caldwell, N.J.**

Water clarifier
. . . saves chemical costs

Applications: For removing impurities as fines from water.
Advantages: This is one of the first pressure-filter systems which removes impurities as fines instead of settleable floc. The system, one of which recently was installed at the Oregon Water Corp., Oakland, Ore., depends for its success on chemical mixture, critical construction of separation beds and constant monitoring from a control center. At the Oakland installation, where muddy water had long been a distressing problem, cost savings of about one-third are being achieved over conventional filtration systems; the supplier says chemical savings are considerable. The clarifier at Oakland is designed to produce 500,000 gpd of clear water during summer months, and 150,000 gpd during rainy periods.
Supplier: **Microfloc Corp., Portland, Ore.**

ELIMINATE DRYER CONDENSATE PROBLEMS with RMF dryer drainage systems



• *Increase Dryer Capacity* • *More Uniform Drying*
• *Higher Production* • *Prevent Reject Sheet*

Our Dryer Drainage Systems will effectively eliminate your water condensate problems. Drying capacity is substantially increased and you get more effective drying at lower temperatures. In addition, RMF Systems result in more uniform drying across the sheet, assuring automatically graduated dryer temperatures. This lessens shrinkage, cracking, curling, wet streaks and hardening.

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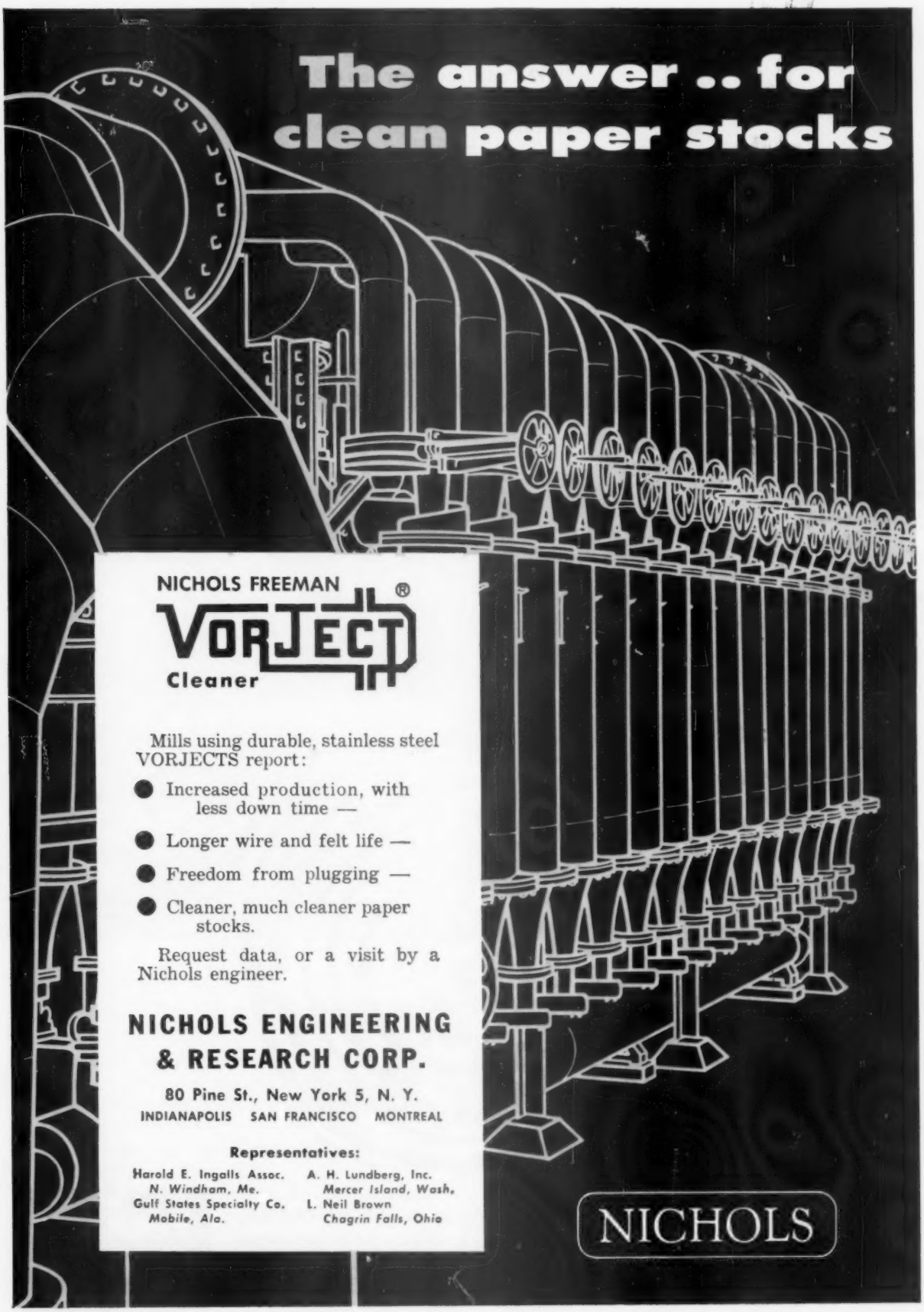
The answer .. for clean paper stocks



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Cleaner

Mills using durable, stainless steel VORJECTS report:

- Increased production, with less down time —
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L. Neil Brown *Chagrin Falls, Ohio*

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Pennsalt chlorine, caustic soda and sodium chlorate are used by hundreds of pulp and paper mills and convertors throughout the country. Handling, storage and application aid available on request. Industrial Chemicals Division, PENNSALT CHEMICALS CORPORATION, Three Penn Center, Philadelphia 2, Pa., 2901 Taylor Way, Tacoma 2, Wash.

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A single, "all-purpose" type of clipper seam cannot operate at maximum efficiency on all paper machines. That's why Brandon makes a wide variety of clipper seam styles . . . and can recommend the specific type that is best for your operation.

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Call your Brandon Man for a demonstration of the many cost-saving advantages of Brandon Dryer Felts.

BRANDON SALES, INC.
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BRANDON DRYER FELTS

starts on p. 31 . . . papermaking firm is a subsidiary of The Mead Corp.

Mr. Haselow, senior member of the Gilbert executive staff, continues as treasurer, a post he has held for ten years, and as director, which he has been since 1937. He joined Gilbert in 1933 as controller and office manager.

Mr. Schmerein, in addition to his responsibility as vice president and sales manager, continues as director and secretary. He joined Gilbert's sales staff in 1945, was elected a director in 1947, named secretary in 1954 and sales manager in May 1961. ■

HASELOW

SCHMEREIN

STRICTLY PERSONAL . . .

Midwest

Ralph W. Noe joins Forest Products Laboratory, Madison, Wis., as a chemist. . . . **John E. Spaulding**, mgr., Naheola (Ala.) mill, Marathon div., American Can Co., has resigned to accept a position with Minnesota Mining and Mfg. Co. **John W. Bard**, Marathon div. production mgr., will manage the mill until a successor is named. . . . **Joseph J. Aid** has been named director of research, boxboard and folding cartons div., Continental Can Co., Chicago.

Louis A. Kasten has been appointed woodroom foreman, and **Martin L. Rackow** has been named plant mechanical engineer, Appleton div., Consolidated Water Power & Paper Co. Mr. Kasten succeeds **Joseph H. Quell**, retired. Mr. Rackow had been jr. mechanical engineer with the company . . . **James J. R. Cheng**, formerly with National Cash Register Co., now is research mgr., Allied Paper Corp., Kalamazoo, Mich.

Ronald G. Morgan is named asst. supt., Angell St. mill, Michigan Carton Co., Battle Creek, Mich. . . . **F. Wayne McMullin** has been named personnel mgr., Hammond, Ind. plant, Keyes Fibre Co., Waterville, Me. He replaces **Robert B. Stewert Jr.**, retired. Mr. McMullin had been with Industrial Vendors Inc., Hammond. . . . **Paul L. Page**, formerly with Imperial Paper & . . . turn to p. 88

Canada
IT'S HARD TO HIT A MILL ANYWHERE WITHOUT DeZURIK REGULATORS!
In hundreds of mills, thousands of DeZurik Consistency Regulators keep proving DeZurik's dominance and excellence in stock-consistency control. Today, backed by over 30 years of partnership with paper-makers everywhere, DeZurik engineers can and will recommend for any situation the exact regulation-installation which will positively assure the utmost in efficiency, accuracy, sensitivity, longevity. DeZURIK CORPORATION—Sartell, Minnesota; or DeZURIK OF CANADA LTD., Galt, Ontario.
Gulf of Mexico
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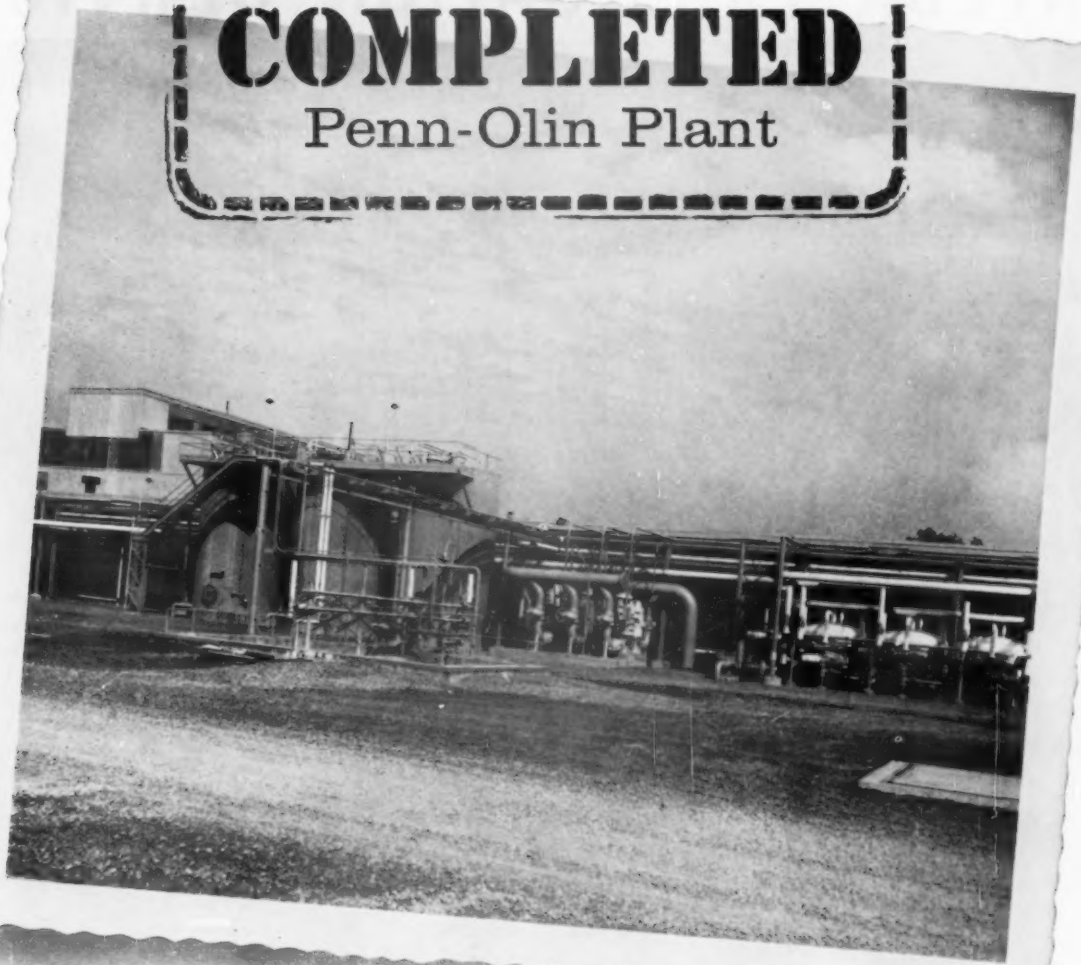
COMPLETED
Penn-Olin Plant



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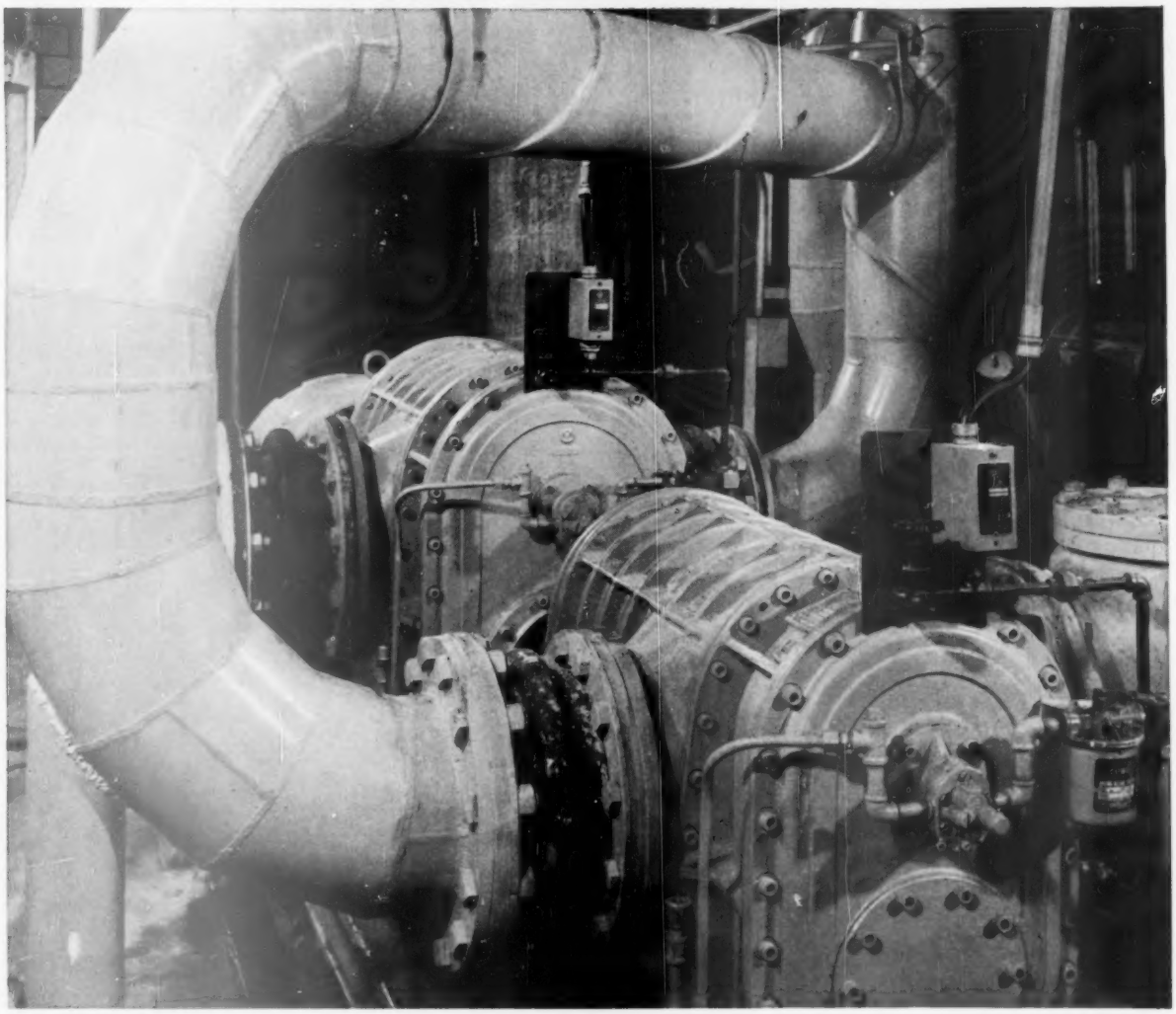
For your chlorate requirements, call one of our district offices or OLIN MATHIESON, Baltimore 3, Maryland.

1682

CHEMICALS DIVISION Olin

NAYLOR FABRICATION SERVICE



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Here is a service geared to your most exacting requirements for pipe, fittings and special fabrications whether you need carbon steel, stainless steel or alloys.

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Pipe sizes range from 4″ to 30″ in diameter and wall thickness from 14 to 8 gauge. Special fabrications from 3″ to 44″ in diameter and wall thickness up to ⅜″. Standard fittings are available from stock.

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STRICTLY PERSONAL . . .

starts on p. 84 . . . Color Corp., now is technical representative, synthetics dept., Hercules Powder Co., Cleveland. **Lewis R. Ayers**, mgr., folding carton research Continental Can Co., has been transferred from Elkhart, Ind. to Chicago.

Rolland F. Sultze is mgr., research and development, Northwest Paper Co., Cloquet, Minn. He was with Simpson Timber Co. . . . William **O. Kroeschell**, formerly with Michigan Carton Co., becomes technical director, Waldorf Paper Products Co., St. Paul, Minn. . . . **Alex Glassman**, formerly with R. R. Donnelly & Sons Co., is appointed director of purchases, I. S. Berlin Press, Chicago.

Frank P. Brophy has been named paperboard sales mgr., forest products div., Owens-Illinois. He was eastern div. sales mgr. for the former mill div. . . . **Richard G. Allen**, mill chemist, Packaging Corp. of America, transfers from Quincy, Ill. to Tama, Iowa. . . . **William D. Hall**, previously with Folding Paper Box Assn., now is a graphic arts and packaging consultant, Elmhurst, Ill.

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Use Bitusize® "B" emulsified asphalt integral sizing to get high dry and wet strength in all your hard sized grades of board. Contact our office nearest you for complete information.
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SOAP CHIPS
V3c
DYNAMITE
Cola
V3s
BEER

John K. Bonnell is now paper mill representative, corn refining division, Penick & Ford, Ltd. He will call on mills in Minnesota and Wisconsin.

Ronald J. Garner has been promoted to mill sales manager, Wausau Paper Mills Co. He is responsible for customer service and liaison between sales and mill production.

Norman W. Henderson has joined the sales staff of The Northwest Paper Co. and will operate from the company's national sales headquarters in Chicago. He was formerly with Brown Co.

East

Con Carrano, vice pres., James Carrano's Sons Inc., has been elected president of the N.Y. Assn. of Dealers in Paper Mill Supplies Inc., oldest paper stock association in the U. S.

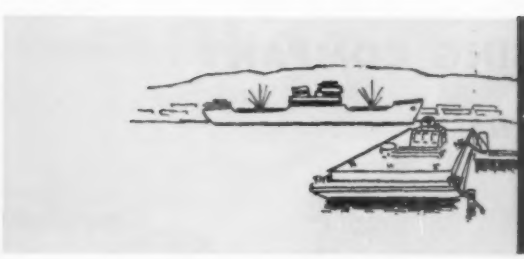
Paul B. Carroll has been named general solicitor, International Paper Co. He succeeds the late John F. Rollins and will be head of IP's legal department.

James D. Allen, formerly with Bergstrom Paper Co., has been named to pulp and paper technical services, FMC Corp., Princeton, N. J. . . . **Joaquin de la Roza Jr.**, becomes vice president of De La Roza Corp., New York. He was with Beloit Iron Works. . . . **Warren S. Rushton**, formerly with Brown-Bridge Mills, to research, Fitchburg Paper Co., Fitchburg, Mass. . . . **Clyde Davis** has been appointed to sales service, Great Northern Paper Co., N. Y. He was with Finch, Pruyn & Co. . . . **Charles E. Payne Jr.**, industrial engineer, St. Regis Paper Co., has been transferred from Jacksonville, Fla. to Deferiet, N. Y.

3 More Regional Supply Terminals ... Nearing Completion

Three additional major sulphur-consuming areas will soon be served with short-haul deliveries of TGS Molten Sulphur. As a matter of fact, at Jacksonville the service is even broader for we will also be stockpiling solid sulphur. Facilities are being set up to 'vat' part of the molten sulphur as it comes in by tanker from Beaumont. We're already providing this dual service at Norfolk.

These three terminals will be ready early in 1962. That will make a total of seven supplying TGS Sulphur to major sulphur-consuming areas with short-haul deliveries.



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No coating is any more durable than the adhesive that holds it together and binds it to the paper. CLINTON starches and dextrins make sure that your coated stock has a uniform finish free from "skips." Used as a clay coating or as a size, CLINEO starches add a high degree of strength and gloss printing quality to gloss surfaces. CLINCAL starches — containing their own lubricants — improve printability and control curl. Both starches are available in many varieties. For quality that makes a lasting impression on customers and prospects, use CLINTON coating starches.

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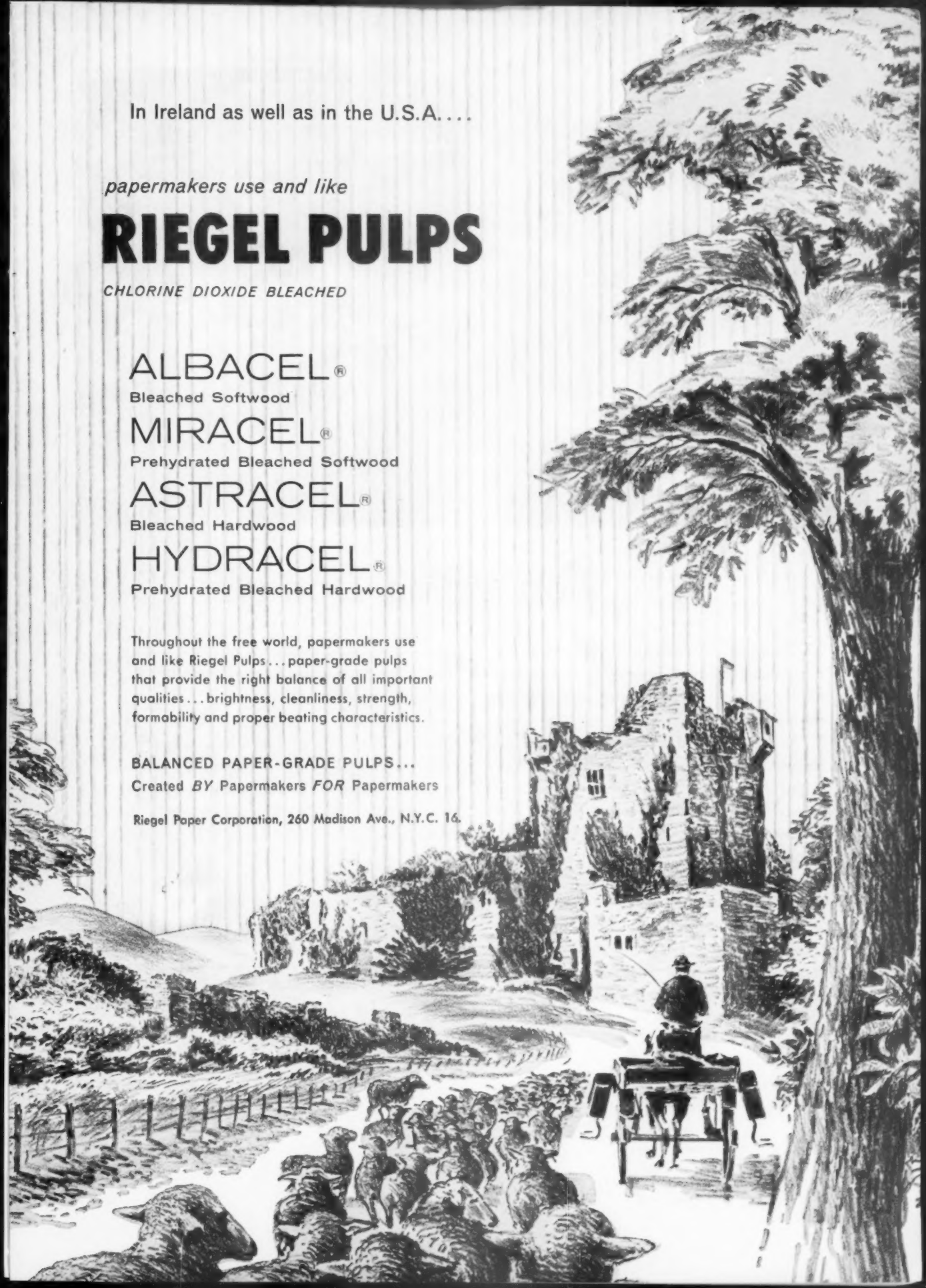

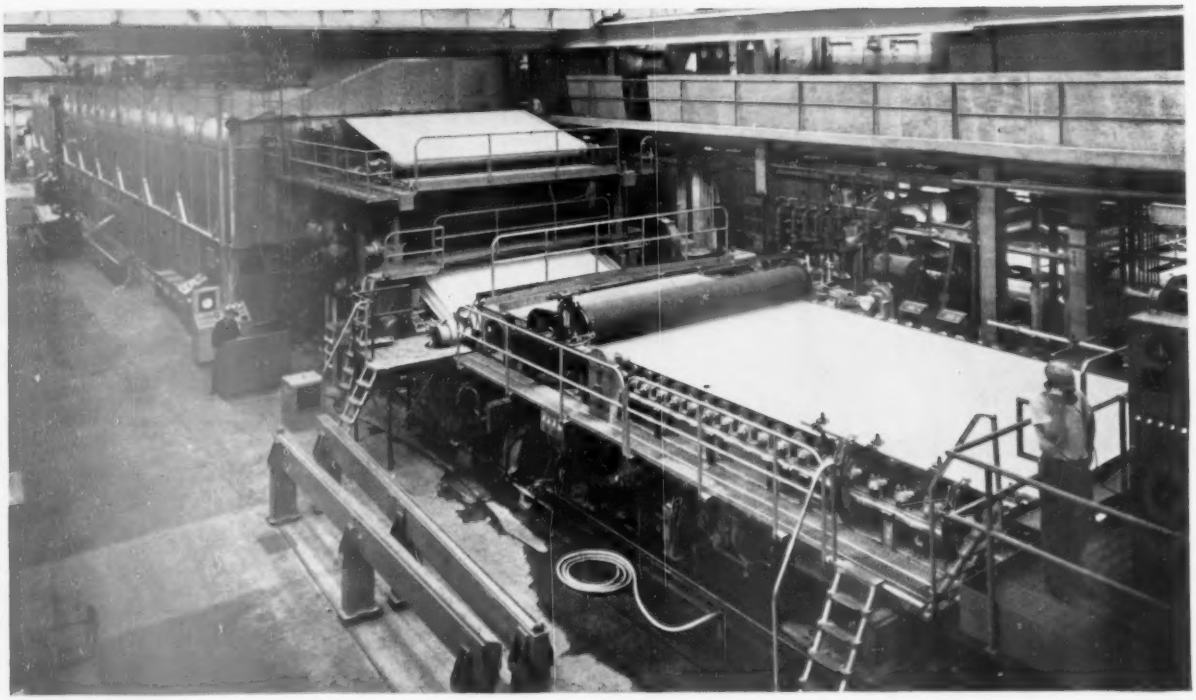

1750 Ton Prima Donna

All Fourdrinier Machines are sensitive, temperamental Prima Donnas, each one completely unalike in performance and operating characteristics.

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The addition of LEV-L-WEVE to *WISCONSIN'S* full line of Fourdrinier Wires now offers you the advantage of making the proper choice or selection from a complete line, backed by over 60 years of continued research dedicated to supply only the finest in Fourdrinier Wires.

Want positive proof? Call or write, today, and a *WWW* representative will tell you how to realize the same dollar savings enjoyed by many other mill operators . . . all of them enthusiastic users of *WISCONSIN* Fourdrinier Wires.

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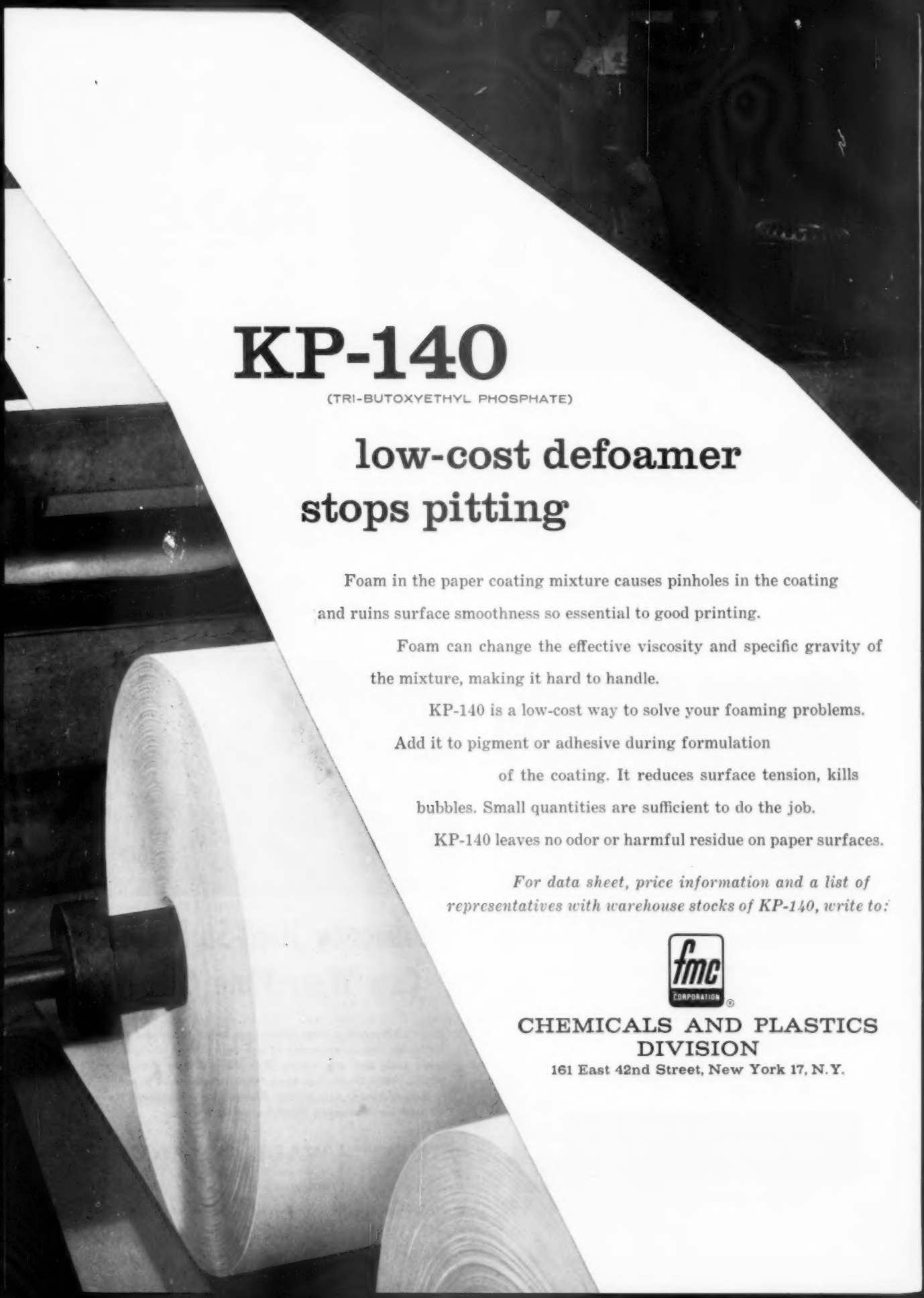

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low-cost defoamer stops pitting

Foam in the paper coating mixture causes pinholes in the coating and ruins surface smoothness so essential to good printing.

Foam can change the effective viscosity and specific gravity of the mixture, making it hard to handle.

KP-140 is a low-cost way to solve your foaming problems. Add it to pigment or adhesive during formulation of the coating. It reduces surface tension, kills bubbles. Small quantities are sufficient to do the job.

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STRICTLY PERSONAL . . .

Leishman heads N.Y.-Canadian PIMA

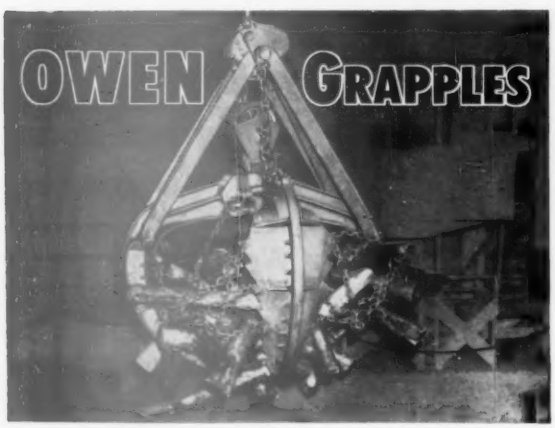
New chairman of New York-Canadian division PIMA is **Stanley J. Leishman,** Provincial Paper Ltd. Congratulating him is **J. Edmond Becker** (l.), The J. P. Lewis Co., retiring chairman. Other officers (l. to r.) are **E. Horton Girdler,** West Virginia Pulp and Paper Co., second vice chairman, **Wesley H. Peterson,** Niagara Wire Weaving Co. Ltd., new affiliate chairman, and **George A. Rogers,** International Paper Co., first vice chairman. Group will host 1962 National PIMA.

Stephen R. Collins now is a research chemist, Kimberly-Clark Corp., New Milford, Conn. . . . **George R. Adams** has joined Armstrong Cork Co., Lancaster, Pa., in chemical research. . . . **Jerrold H. Moyer,** formerly with Champion Papers, Inc., is technical director, Gilman Paper Co., Gilman, Vt. . . . **Frank B. Loppnow,** production supt., Kimberly-Clark, transfers from Neenah, Wis. to Niagara Falls, N.Y. . . . **Stewart Otto,** previously with Hudson Pulp & Paper Co., now is project supervisor, Union Bag-Camp Corp., Hoboken, N. J.

Robert L. Wise, coatings customer service chemist, Dow Chemical Co., is transferring from Midland, Mich. to Gales Ferry, Conn. . . . **Rohe V. Pennington** now is on the engineering staff, Improved Machinery Corp., Nashua, N. H. He was with Owens-Illinois Glass Co., mill division. . . . **Laurence T. Waterman,** previously with St. Regis Paper Co., now is sales mgr., Northeast Constructors, Inc., Gouverneur, N. Y.

Frank T. Gerould is now manager of the machine systems division of the Dennison Mfg. Co. He was formerly national sales mgr. of that division. . . **Douglas E. Hefferan,** supervisor of safety paper sales for Hammermill Paper Co., died Oct. 28.

Delmont J. Lohuis, who has been with American Can Co. for 26 years, has been appointed research and development manager for its Milk Container Div. In the past ten years he has specialized in research on problems involving paper and plastics. The Milk Container division has recently introduced a new outside



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Colmonoy Hard-Surfacing Cuts Wear Plate Costs

Worn chipper disc wear plates are being reclaimed with Colmonoy No. 5 electrodes at less than a third of replacement cost, and are lasting 2½ times longer than new plates. Plate shown has been hard-surfaced and is ready to be machined. Ask for our Engineering Data Sheet No. 49 and the Colmonoy Hard-Surfacing Manual.

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Strictly Personal . . .

polyethylene coated, inside polymer lined "five-barrier" container in the quart size and a laminated, polyethylene coated inside and outside half gallon container.

Howard E. Walker steps up as director of research for The Flintkote Co., replacing **R. H. Cubberley** who has retired. He will headquarter in Whippany, N.J.

Dr. Ivar Stockel is now associate mgr. of research, St. Regis Paper Co., working under **Dr. K. A. Arnold.** He received his doctorate in mechanical engineering from M.I.T.

H. Ahlmeyer has been named mgr., production engineering, folding carton & drum div., Continental Can Co. **G. Posson,** formerly asst. mgr., at the Pierpoint (N.Y.) plant, succeeds Mr. Ahlmeyer as mgr. of that plant.

George Cupernall, formerly plant engineer at St. Regis Paper Co's. Deferiet, N.Y. mill, has joined Fitchburg Paper Co. as project engineer . . . **Joseph P. Hunt** has been named manager of personnel and office services for the New York office of International Paper Co. He succeeds **Frederick A. Aufferman, Jr.,** assistant secretary, who has been assigned to special duties for the executive staff.

Canada

Harold S. Foley, former chairman of the board, Powell River Co., has been elected chairman of the 1962 Heart Fund Campaign in British Columbia.

J. Keith Eadie has been named production mgr., pulp and paper at Powell River and Alberni for MacMillan, Bloedel & Powell River, Ltd. A mechanical engineering graduate from U. of British Columbia, Mr. Eadie started his career with Dominion Engineering Co. in 1940, although he spent the following four years with the Canadian armed services. He joined Abitibi Power & Paper Co. at Iroquois Falls in 1947, going west to MB&PR in 1949 as mechanical supt. at the Alberni kraft mill. After service as plant engineer and . . . turn to p. 100

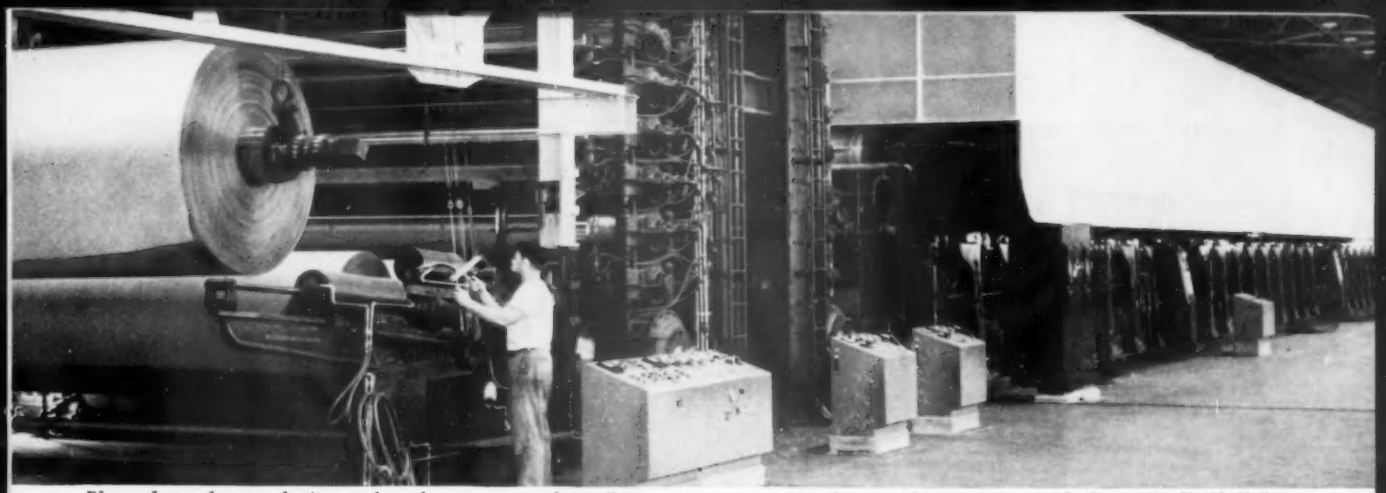

Photo shows dryer end of typical modern paper machine. Bearing temperatures on these machines may go as high as 370° F. Shell Paper Machine Oil was designed specifically to overcome lubrication problems in today's paper mills. (PHOTO COURTESY ST. REGIS PAPER CO., JACKSONVILLE PLANT)

SPECIAL OIL:

Non-hydrolyzable Shell Paper Machine Oil helps prevent sludge deposits —even with today's higher dryer temperatures

Shell scientists developed Shell Paper Machine Oil specifically to combat lubrication problems found in the more severe operating conditions of today's paper mills.

It has excellent load-carrying properties. It resists rust formation, oxidation, foaming—and reduces sludging.

Here are the facts.

TODAY's increased dryer temperatures have pushed bearing temperatures as high as 370° F. New lubrication problems have turned up.

With many conventional oils used for paper machine lubrication, lacquer and sludge deposits in oil circulating lines and in moving parts, such as bearings, can cause unscheduled delays, increase maintenance costs.

And in some cases, these oils do not tolerate water. Oil-water interaction may lead to plugged bag filters, stained metal surfaces. And even deterioration of cotton bag filter elements.

Shell's exclusive additives solve the problems

To overcome these problems, Shell scientists developed an oil containing special additives that resist interaction with water.

Shell Paper Machine Oil is specially formulated to resist rust formation and inhibit oxidation. And it has excellent load-carrying properties.

Three additional features

Here are three additional features of Shell Paper Machine Oil:

1. Shell Paper Machine Oil has excellent foam resistance. You can use it in roll drive gear integrated circulating systems as well as in dryer bearings.

2. Shell Paper Machine Oil is designed for machines that run at high temperatures and with high steam pressures.

3. Shell Paper Machine Oil comes in two grades to suit a range of operating temperatures and steam pressures. *Shell Paper Machine Oil 68*—for steam gauge pressures of 30 to 50 psi. *Shell Paper Machine Oil 72*—for steam gauge pressures of 50 psi and up. Minor fluctuations of temperature have little effect on the viscosity of either grade.

These three features of Shell Paper Machine Oil help prevent clogged oil lines and bearing breakage. And they improve load-carrying capacity.

For full data on Shell Paper Machine Oil, see your Shell Industrial Products Representative. Or write: Shell Oil Company, 50 West 50th Street, New York 20, N. Y.

SHELL

A Bulletin from Shell
—where 1997 scientists are working to provide better products for industry

General Electric Makes Eddy-current-coupling Drives

And they're dependable drives. The complete line includes water-cooled and air-cooled eddy-current couplings. We call them KINATROL* drives. Ratings are from 1 to 150 horsepower, operating from standard a-c power.

A General Electric KINATROL drive is not just another eddy-current coupling. For instance, in the water-cooled coupling, water control is packaged. You'll see much less external piping. Furthermore, the coupling is protected from flooding—and the air gaps are dry, preventing corrosion.

KINATROL couplings are compact, field proven and dependable. General Electric has had a good deal of experience in the engineering, manufacturing, and application of packaged adjustable-speed drives. And we know how important service is to a customer.

KINATROL —a good product, with the kind of service you can depend on. Please call your nearest General Electric Sales Office for further details.

*Trademark of General Electric Company

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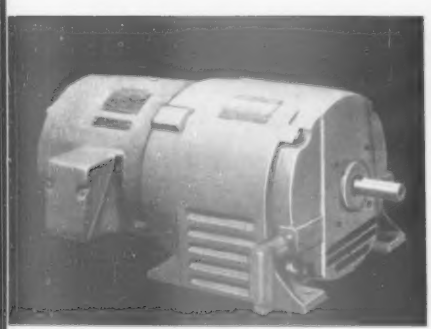
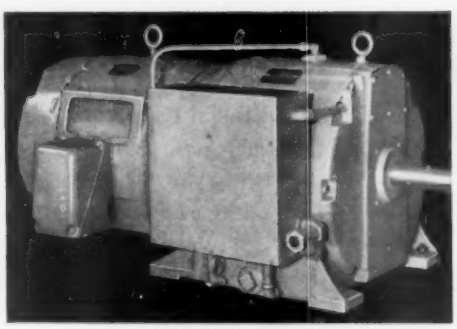
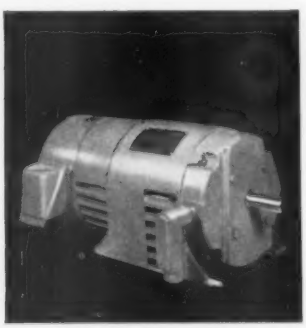


AIR COOLED, 7-1/2 to 100 HP



WATER COOLED, 25 to 150 HP



AIR COOLED, 1 to 5 HP

DIRECT CURRENT MOTOR AND GENERATOR DEPARTMENT

GENERAL ELECTRIC

ERIE, PENNSYLVANIA

MYKONOS, GREECE: photographed by Kronfeld for Brown & Bigelow's World Scenic Calendar

Brilliance...with Unitane® TiO_2

Fine printing must be matched with fine paper to obtain the brilliance desired in a beautiful color reproduction. Cyanamid's Unitane 0-110 in the paper used here has contributed to whiteness, opacity, and surface texture needed to bring clarity, freshness and beauty to the reproduction.

Unitane pigments give paper maximum opacity and brightness with minimum show-through. The uniform particle size and easy dispersion have made Unitane 0-110 the preferred titanium dioxide by many paper makers.

You can count on Unitane to provide the type of printing surfaces demanded by the graphic arts industry. This sample of four-color printing is eloquent evidence of how much quality papers can add. Ask your Cyanamid Pigments representative to give you the complete story on Unitane pigments.

This sheet opacified with Unitane 0-110

CYANAMID

AMERICAN CYANAMID COMPANY • Pigments Division • 30 Rockefeller Plaza, N. Y. 20, N. Y.

STRICTLY PERSONAL . . .

starts on p. 96 . . . assistant mgr., pulp and paper, at Alberni, he was transferred to Vancouver head office as pulp and paper assistant to exec. vice pres. E. G. Shorter.

J. S. Gardiner, J. Superstein and H. W. Manley have been elected directors of Alberta West Newsprint Mills, planning a newsprint mill at Whitecourt, Alberta.

Blake Hardy has been appointed dealer sales mgr., Abitibi Power & Paper Co. with Ross Mawer, industrial sales and service mgr., and **Walter Powell, merchandising mgr.**

T. R. Moore, president and gen. mgr, Anglo-Newfoundland Development Co., has been elected president of Price Bros. & Co., succeeding **A. C. Price,** who has become chairman of the board.

A. R. Hamilton has been appointed vice president and manager of the pulp and paper division, Hydraulic Machinery Co. Ltd., Montreal. **G. R. Mitchell** becomes sales manager of the pulp and paper division, and **George A. Bishop** has been promoted to assistant sales manager.

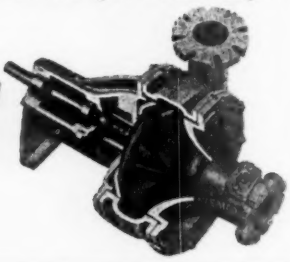
Walter C. Koerner, chairman of the board, Rayonier Canada, Ltd., has been elected a director of Canadian National Railways.

R. E. Costello has been named vice pres., development, engineering and services, for Abitibi Power & Paper Co., and **C. H. Rosier** has been made vice pres., board products. Mr. Costello was gen. mgr., panelboard div. Mr. Rosier joined the organization in 1959 as vice pres. and gen. mgr., Alpena, Mich. plant.

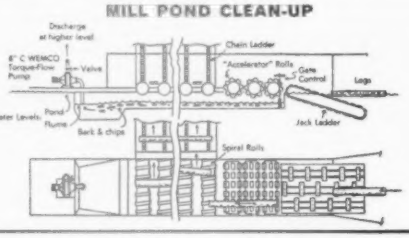
L. G. (Larry) Harris, until recently, mgr., pulp sales, MacMillan, Bloedel & Powell River, Ltd., has been appointed gen. mgr. of the company's Harmac kraft pulp mill and the organization's various converting operations, including Sidney Roofing & Paper, Martin Paper Products and Island Paper Mills (fine paper). A chemistry graduate of the University of B.C., Mr. Harris has been active in the industry since the early 1940's. Prior to going to head office pulp sales he was mgr., Harmac division, Vancouver Island.

WEMCO® The INCREDIBLE Torque-flow Pump!

the pump they couldn't clog

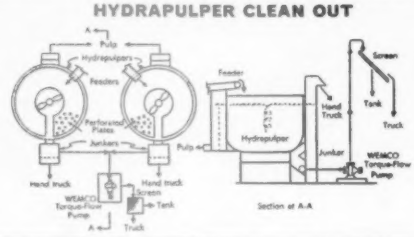


MILL POND CLEAN-UP



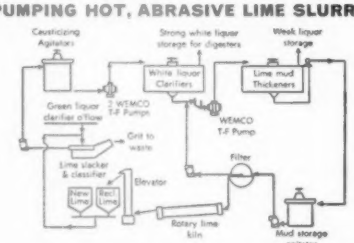
In a large Canadian paper mill a Torque-Flow Pump is used to keep mill pond and power generation intakes free of bark slabs and chips torn from logs by haul-up equipment. Although debris is skimmed from surface of pond, the pump has operated continuously for an entire season without air binding or clogging.

HYDRAPULPER CLEAN OUT



An increasing number of reclaimed paper installations now use Torque-Flow Pumps for hydrapulper clean out. Because of exclusive non-clog liquid impeller action, a Wemco Torque-Flow can pump wire, rags, rope, glass and other debris directly from the junker onto a trash screen. If done manually, clean out would require several man hours of labor.

PUMPING HOT, ABRASIVE LIME SLURRY



In a northwestern paper mill, Wemco Torque-Flow Pumps are used to feed a hot, abrasive lime slurry from the causticizing agitators to the clarifiers. Plant records on a pump installed in 1958 show a maintenance expense of only $20.00 in over three years' operation! A Wemco Torque-Flow Pump is also used to pump the lime mud, which runs as high as 40% solids, from the clarifier to the thickener.

Only Wemco's Torque-Flow Pump with continuous, open passage, liquid impeller could have done it!

Write for more detailed information on Torque-Flow applications today.

WEMCO® *a division of* Western Machinery Company
650 Fifth Street, San Francisco 7, California

Pacific

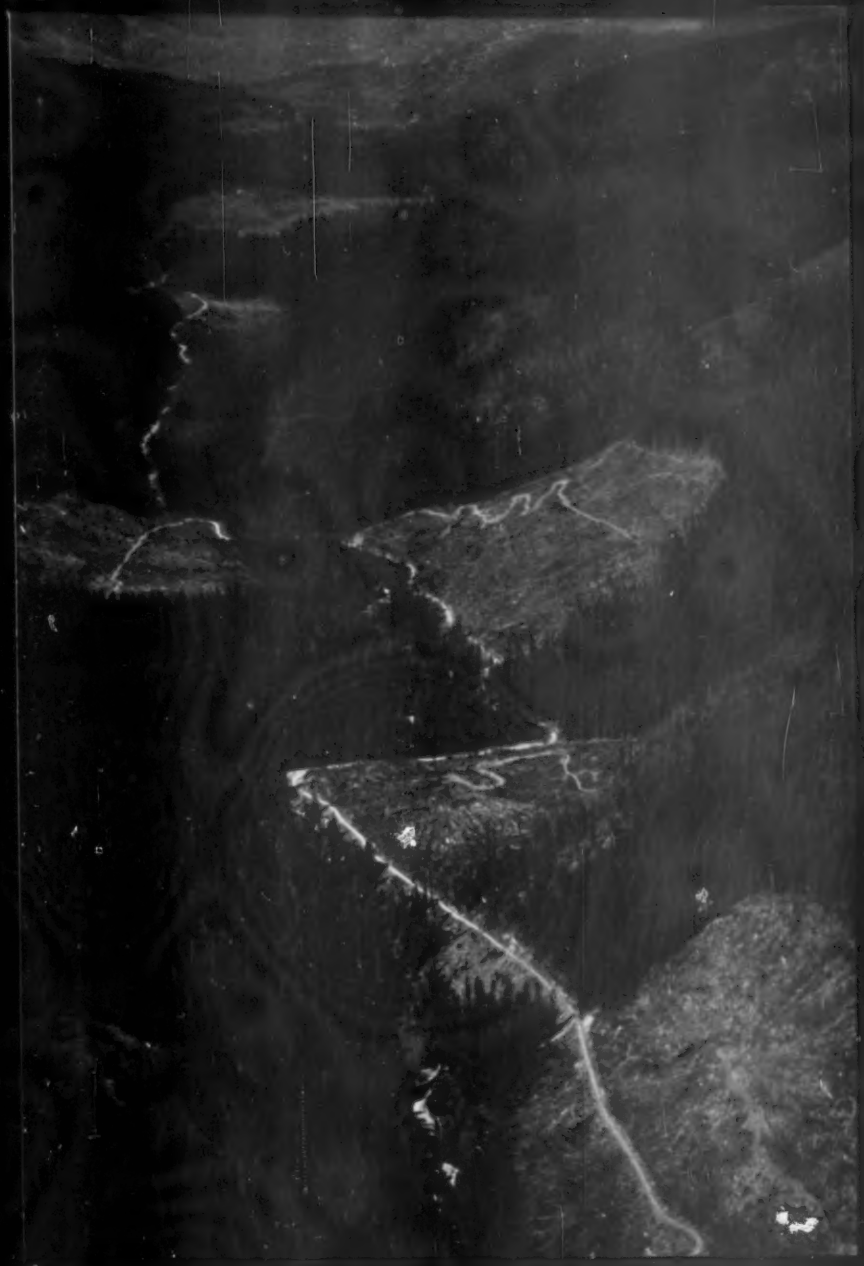
Scott S. Hinsdale has joined Morden Machines Co. as sales and service engineer, serving the West Coast. He is a m.e. graduate from the U. of Portland.

Puget Sound Pulp & Timber Co.'s board of directors has elected **Roy E. Anderson** as a new director, filling a vacancy resulting from death of his father, **Edward P. Anderson,** last July. The newly elected director is presently manager-domestic pulp sales for the company. . . . **James R. Norris,** formerly senior engineer at Crown Zellerbach Port Townsend (Wash.) division, transfers to CZ Camas as project engineer. . . . **James E. McCourt,** asst. paper mill supt.-wrap at CZ Camas, became asst. paper mill supt. at Crown's West Linn (Ore.) division Dec. 1.

South

IP promotes Dowdy

Named to be manager of the Panama City woodlands region, headquartered at Mobile, Ala., **Felix Dowdy** will be charged with management of approximately 580,000 acres of company-owned



Aerial view left shows how timber harvesting by Puget plans for tomorrow's pulp requirements. Staggered cutting blocks, surrounded by standing green timber, amply provide young seedlings for natural regeneration of trees.

Close-up above shows how nitrogen soil inoculation pays dividends in more vigorous tree growth. Needles above thumb are pre-fertilization result; longer, lighter green needles below thumb are direct result of Puget's fertilization practices.

PUGET PULP *

...strong, clean, uniform and white

PUGET SOUND PULP & TIMBER CO.

BELLINGHAM • WASHINGTON

* A SOFTWOOD CHLORINE DIOXIDE BLEACHED SULPHITE PULP

STRICTLY PERSONAL . . .

forest land in Florida, Georgia and Alabama and the procurement of 750,000 cords of pulpwood annually for International Paper's Panama City, Fla. mill. He succeeds William M. Bailey, who has resigned.

Mr. Dowdy is a graduate forester of Louisiana State University at Baton Rouge. He joined IP as a forest technician in 1940. He became regional forester in 1957 and until his promotion has been regional forester for the Gulf woodlands region of IP.

Dr. Alfred M. Heald has joined Sonoco Products Co. as asst. director of chemical research and chemical manufacture. He has his doctorate from the Institute of Paper Chemistry.

Roy L. Miller is now mgr., kraft development, St. Regis Paper Co., responsible for kraft pulp and paper development and operations of the pilot plant at Pensacola, Fla.

H. R. White has been named asst. sales mgr., coarse paper dept., and Andrew H. Peatross has been named asst. sales mgr., fine paper dept., Dillard Paper Co., Greensboro, N.C.

John C. Randall, formerly with Ecusta Paper div., Olin-Mathieson Corp., is a research assistant and graduate student, North Carolina State College, Raleigh, N. C. . . . Robert J. Menard is appointed utilities engineer, Scott Paper Co., Mobile, Ala. He was with Nalco Chemical Co. . . . Gorden W. Pixler, previously with Air Reduction Co., has joined Heyden Newport Chemical Corp., paper chemicals technical sales service. . . . James Sackellares now is technical director, southern paperboard div., Continental Can Co., Port Wentworth, Ga. . . . John W. Bard will be acting mgr., Naheola (Ala.) mill, Marathon Div., American Can Co., until a successor is named for John E. Spaulding, former mgr., now at 3M Mfg. Co.

Pulpwood

Ali J. Sandoz, manager of western timber dept., International Paper Co., Long-Bell Lumber Co. division at Longview, Wash., has been named manager of woodlands for this division. According to Richard C. Doane, chairman of the board, Mr. Sandoz will be responsible for all the company's woodlands operations in Pacific Northwest, including forest manager and harvesting on company-owned lands and procuring timber and logs.

John H. Bork has been promoted to logging supt., Brown Co., succeeding Stanley H. Wentzell, who has retired. Mr. Bork will be responsible for all logging on 630,000 acres of company land.

P. M. Burns Farm and Industrial Supply, Clearfield, Pa., has been named an Oliver industrial and construction equipment dealer. Owner Paul M. Burns will handle the complete line of Oliver crawler and wheel tractors and allied equipment.

Suppliers

Hyster Co. makes key promotions (l to r) Joseph W. Morgan becomes domestic sls. mgr. of Tractor Equipment Div.; Graydon Broms succeeds Mr. Morgan as asst. sls. mgr. of this division.

Austin H. Tifft, asst. director, mill services, Oxford Paper Co., joins Monsanto Chemical Co.'s organic chemicals div. as manager, new product development, pulp and paper.

Pitt Kelly Kerstner

Earle W. Pitt has been assigned to post of Western field sales manager of The Foxboro Co. Earl M. Kelly becomes regional manager of Cleveland territory and Steve V. Kerstner moves in as branch manager of the Los Angeles office. Mr. Kelly replaces Harvey L. Lee who died recently.

ARCHER High Pressure CONVEYING
USING LOBE-TYPE POSITIVE BLOWERS AND ARCHER FEEDERS
LOWER COST CHIP HANDLING
SIDE-BY-SIDE RAIL CAR
PULP CHIP AND SAWDUST LOADING STATION
If it can be moved by air Archer can do it

Manufacturers of Blower Systems Since 1900
Archer Blower & Pipe Co., Inc.
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Portland 1, Ore.–6141 S.W. Macadam Ave.–CH 6-3308
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RAY SMYTHE CO.
Pulp, Paper and Wood Mill Machinery and Supplies
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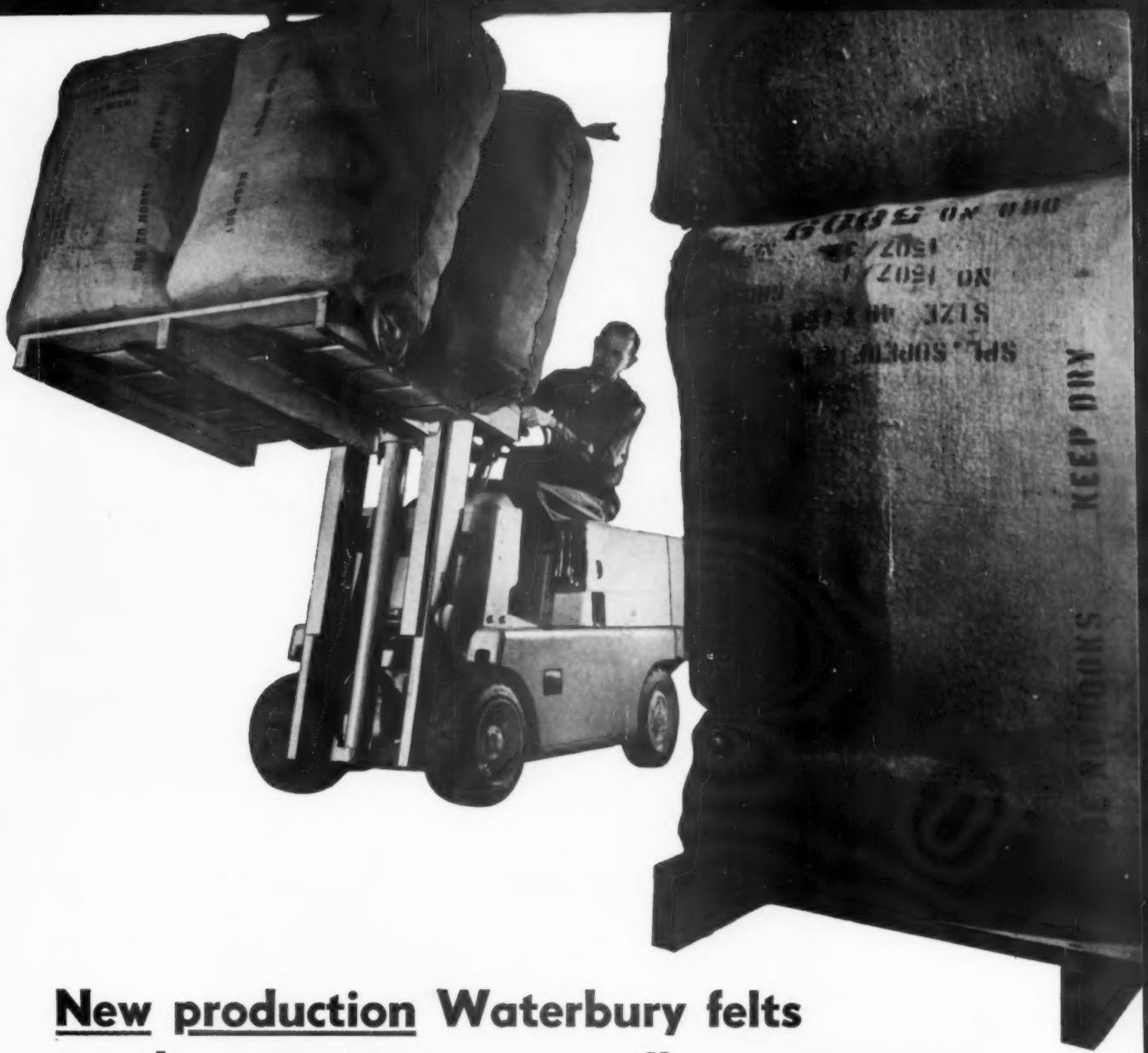
Production & Management Magazine of the Industry
PULP & PAPER
Largest Paid Circulation in U.S.
Fastest Growing Magazine in the Industry



New production Waterbury felts on the way to save a mill money

What you see here is the progeny of one of our better corporate marriages on the way to help some fine paper mill keep quality *up* and costs *down.*

They are still Waterbury felts, loomed in the well-known Waterbury mill in Skaneateles Falls, N. Y. The difference is that like all *new production* Waterbury felts, they now benefit from the vast technical skills of the Porritts & Spencer group, largest producers of papermakers' felts in the world.

Many mills have discovered for themselves how superior these *new production* Waterbury felts are. If you are curious to know whether they can also help you, please phone or write us.

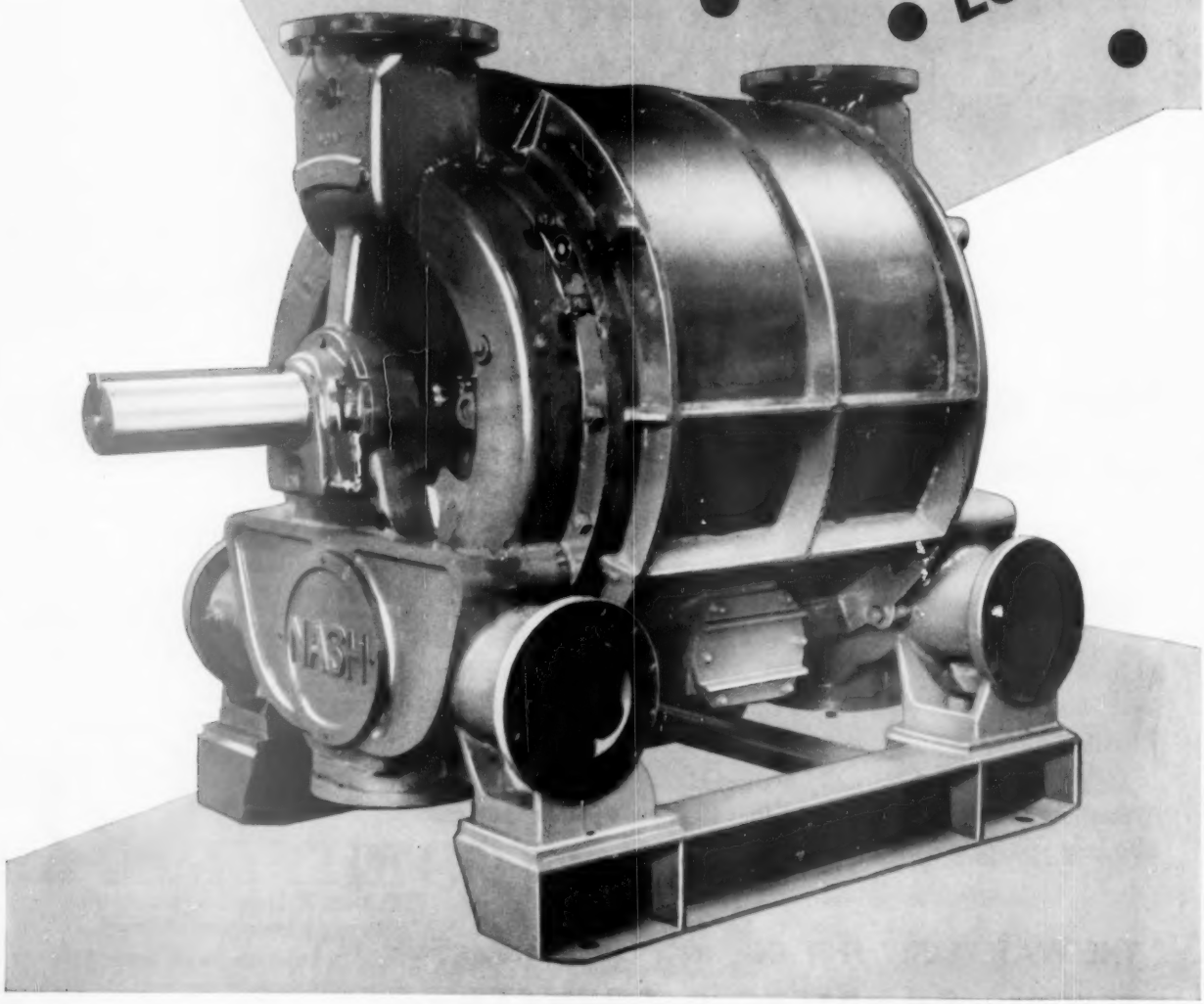
THE WATERBURY FELT CO., INC. Skaneateles Falls, N.Y.

Member **PORRITTS & SPENCER** Group

a new NASH

designed for

- HIGH PERFORMANCE
- RELIABILITY
- LOWER
-



VACUUM PUMP

INVESTMENT
REDUCED OPERATING COSTS

- Vacuums to 25″ of Mercury with sustained volume and lower horse power. Available in capacities to 9000 cubic feet.

Can be supplied with integral reduction gear for direct connection to high speed motors.

Material reduction in floor space required.

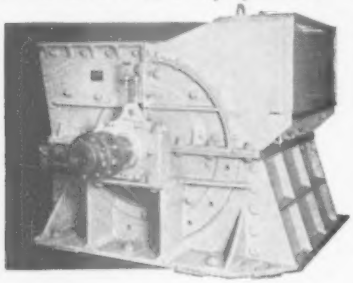
Send now for details of the new 6000 series Nash Vacuum Pumps.

NASH ENGINEERING COMPANY

SOUTH NORWALK. CONNECTICUT. U.S.A.

Gruendler
POWERFUL Bark Hogs
operate up to 12 months without maintenance!

These magnificent machines produce easy-to-handle fuel for suspension or stoker burning. Many installations the world over, handling every type of bark as low as 2½ to 3 h.p. per ton.



Write for Catalog 900 showing complete line.

Gruendler
CRUSHER & PULVERIZER CO.
2915 North Market
St. Louis 6, Missouri

. . . LITERATURE

Silicone coatings
for release paper, are shown in bulletin S-11. Described are three emulsions, four solvent solutions and two controlled release additives for application from solvent. Tips on care of silicone coating equipment and description of seven new silicone products are included. Write General Electric Co., Silicone Products Dept., Waterford, N.Y.

Measurement, recording
and test instruments are shown with their approximate prices. Included are data handling systems, lab and calibration instruments, temperature controllers and temperature sensing instruments. Ask for Catalog G-10b from Minneapolis-Honeywell Regulator Co., Station M389, Wayne & Windrim Avenues, Philadelphia 44, Pa.

Artificial rainmaking
is subject of a new special report. Tests underway by universities, governmental agencies and commercial rainmaking firms have shown that rain can be induced to fall under proper conditions and most authorities believe that within a relatively short time, artificial rainmaking will be a widely accepted procedure in many areas of the U.S.

Some benefits: a 15% increase in precipitation on a 1,000 sq. mile area having an annual rainfall of only 15 ins. would yield an additional 100,000 acre-feet of water. This is about 33 billion gallons. In dry regions, this water would have a monetary value ranging up to $5,000 for each square mile. In addition, regulation of rainfall might eliminate completely the staggering annual toll in lives and properties that results from vagaries of the weather. The report also says a whole new legal environment will have to be developed to cope with artificial rainmaking and that some states have already begun to enact laws and regulations applying to these procedures. Probdiscussed, along with some visionary schemes for permanently altering climates of the earth.

The report has maps showing world rainfall and areas of cloud seeding in the U.S. and also lists various research lems involved in cloud stimulation are projects with names and addresses of commercial rainmaking firms.
Booklet: "Modifying Weather Through Artificial Rainmaking." Price: $2. Supplier: Water Information Center, Inc., 864 Willis Ave., Albertson, N.Y.

Bearing book
lists all sizes of ball-bearing pillow blocks, flange units and take-up units as well as porous-bronze and babbitted pillow blocks manufactured by the company. New information is on babbitted bearings load ratings and maximum shaft speeds. New items are two-hole flange units, offered in shaft sizes from ½ in. to $1\frac{7}{16}$ in.
Bulletin: T. B. Wood's Sons Co., Chambersburg, Pa.

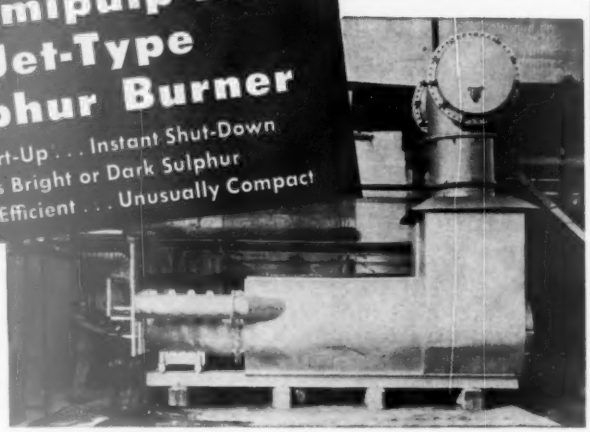
Liquid detergent
for de-inking, felt washing, system cleaning and pitch control contains chelating and water softening agents, and will blend with anionic and non-ionic surface active agents. Data Sheet can be requested from E. F. Houghton & Co., 303 W. Leigh Ave., Philadelphia 33, Pa.

Temperature transmitter
of pneumatic design features force-balance operation and automatic compensation for ambient temperature and pressure changes. Bulletin 13-17C includes the unit's temperature ranges.
Write: The Foxboro Co., Foxboro, Mass.

Tensioners
for cloth and plate deck Allis-Chalmers screens are described in bulletin 26B9995. The company says its "Wedgtite" tensioners eliminate threading and bolt-cutting and reduce downtime.
Write: Allis-Chalmers, Milwaukee 1, Wisc.

Chemipulp-KC Jet-Type Sulphur Burner

- Fast Start-Up . . . Instant Shut-Down
- Handles Bright or Dark Sulphur
- Highly Efficient . . . Unusually Compact



30-ton installation, Rayonier Canada Limited, Port Alice, B. C.

In the Chemipulp-KC Burner, molten sulphur is sprayed into the burner as a fine mist; heated secondary air is then introduced in several stages, resulting in clean, efficient burning. The burner quickly reaches its operating temperature of about 2400°F., minimizing production of SO_3. Operates efficiently at all SO_2 concentrations between 12% and 18½%. At 2100°F, bitumen in dark sulphur is completely burned.

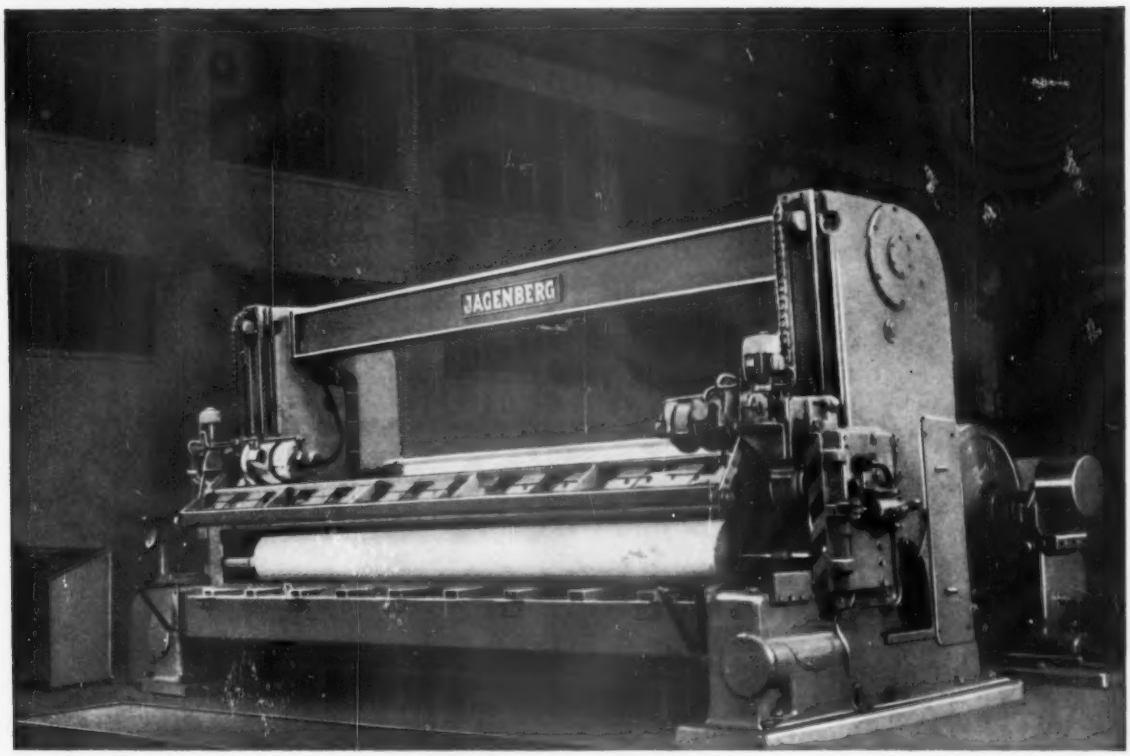
Available in a range of sizes up to 50 tons of sulphur per day and each size will produce SO_2 gas efficiently through a wide operating range. Compact design and flexibility of layout permit installation in limited space.

Write for Bulletin 100

Chemipulp Process Inc. Woolworth Building, Watertown, N.Y.
Associated with Chemipulp Process Ltd., 253 Ontario St., Kingston, Ontario
Pacific Coast: A. H. Lundberg, Inc., P. O. Box 186, Mercer Island, Wash.
Lundberg-Ahlen Equipment Ltd., 779 W. Broadway, Vancouver 10, B. C.

JAGENBERG

MACHINE BUILDERS TO THE PAPER INDUSTRY



Picture shows Type 25, trim 177", speed 5000 fpm, in Finnish Kraft Paper Mill.

Our new
TYPE 25 WINDER with hydraulic and pneumatic features.
Designed for heavy duty and high speeds.

JAGENBERG Products

- **Winders of all types for paper and board**
- **Sheet Cutters for Paper, Board and Pulp**
- **Slitter/Rewinders**
- **Core Winders and Recutters**
- **Coating, Laminating and Gumming Machines**

JAGENBERG-WERKE AG-DUSSELDORF-WEST GERMANY

Sales and Service: JAGENBERG USA, INC.
300 Park Avenue South, New York 10, N.Y.
In Canada: JAGENBERG OF CANADA LTD., 209 Davenport Road, Toronto 5, Ont.

SARAN LINED PIPE carries 50,000 gal/day of ClO_2 for 5 years—only 1 elbow replaced!

More than 1100 feet of Saran Lined Pipe continuously carries highly corrosive chlorine dioxide—in both gaseous and solution form—for West Virginia Pulp and Paper Company's Covington, Virginia, plant. Over the past five years, this line has carried more than 18,000,000 gallons of this corrosive material. *Not a single length of pipe has failed from corrosion*—only one elbow has had to be replaced!

"In our experience, Saran Lined Pipe provides maximum resistance to corrosive liquids, and the best dollar value in terms of original cost and maintenance costs," says Superintendent E. K. Scholz.

"One advantage of Saran Lined Pipe—in addition to its corrosion resistance—is outstanding thermal tolerance. Sudden changes of temperature over a wide range won't crack it. And we don't have to carry a large inventory of Saran Lined Pipe on hand . . . only a few feet of various pipe sizes, plus a small quantity of spare flanges and fittings."

When your plans call for piping systems that must be physically strong, with maximum resistance to corrosion, consider Saran Lined Pipe. Saran Lined Pipe, fittings, valves and pumps are available for systems operating from vacuum to 300 psi, from below zero to 200° F. They can be cut, fitted and modified easily in the field without special equipment. For information, write Saran Lined Pipe Company, 2415 Burdette Ave., Ferndale, Mich., Dept. 1571JJ12-11.

THE DOW CHEMICAL COMPANY DOW Midland, Michigan

CORROSION CONTROL

for the pulp and paper industry!

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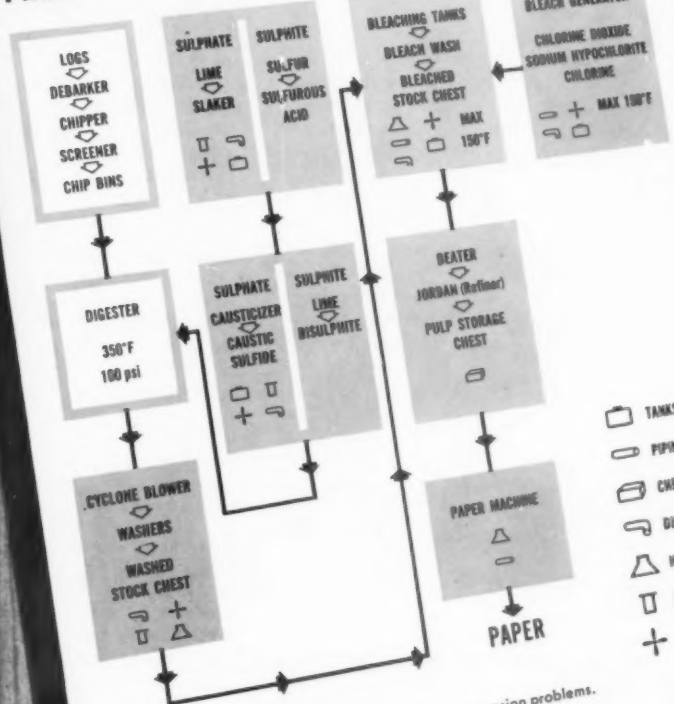

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Curtain coating techniques

using highly functional polyvinylidene chloride latex on paperboard materials appears near with a report by National Starch and Chemical Corp. of significant application data gained in this area. Lab trials by National show that continuous films of its Resyn 3600, a polyvinylidene chloride water-based system, can be achieved at low coat weights on various substrates with curtain coating equipment.

This coating technique, says National, allows a thin curtain of latex to be formed prior to application and gently deposited as a continuous film on substrates fed through the coater. Coatings so applied set rapidly since the preformed film does not cause excessive pre-wetting or penetration of the stock as is common when conventional application methods are used.

Relatively low cost of this equipment is said to raise attractive possibilities for its use not only in sheet coating polyvinylidene chloride on piece work, but also in applying latex to paper in web coating.

Resyn 3600, introduced last year by National, is being used by conventional coating techniques on paperboard. Advantages of the latex are said to be resistance to moisture, gases and greases.
Supplier: National Starch and Chemical Corp., 750 Third Ave., New York 17, N. Y.

Paper Defoamers

and adhesive additives of this supplier have been cleared by the Food and Drug Administration. Included are 116 paper defoamers.
Nopco Chemical Co., 60 Park Pl., Newark 1, N.J.

New chemical producer

is North American Coal Corp., scheduled to enter field at end of year with completion of processing plant on the Ohio River at Powhatan Point, Ohio. Major product will be aluminum sulfate in granular and liquid form, for pulp and paper waterproofing. Raw material will be extracted from alumina bearing ore which occurs in layers above coal veins. This is the first time the company has branched off from coal mining operations.

Epoxy resin

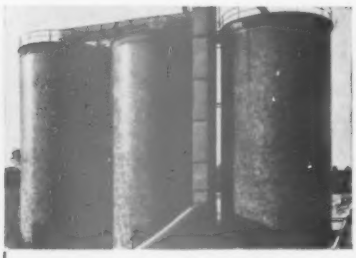
to reduce viscosity of liquid epoxy systems used in coating marks this company's entry into this chemical area. "Agent At-534" is claimed to give end property advantages such as greater impact resistance. Furthermore, the company says its resin reacts with epoxy-curing agent admixtures without any appreciable effect on the rate of cure or gel, even at room temperatures. It can be stored for long periods under normal atmospheric conditions. Further details including specific viscosity reduction data are available.
Supplier: Acetylene Chemicals Dept., Antara Chemicals Division, General Aniline & Film Corp., 435 Hudson St., New York 14, N.Y.

Seven polyethylene resins

designed for extrusion coating and lamination of paper, paperboard, foil, and films vary in melt index and density to contribute to specific properties needed in different packaging, such as multi-wall bags, milk cartons, and overwraps. The supplier says these "coating grade" resins carry PE properties to flexible webs.
Supplier: The Dow Chemical Co., Midland, Mich.

Treated corn starch

products will be manufactured at expanded facilities of American Maize Products Co., Hammond Ind., in mid-1962. Cost of the expansion to widen the line of specially treated corn starch products: $500,000.



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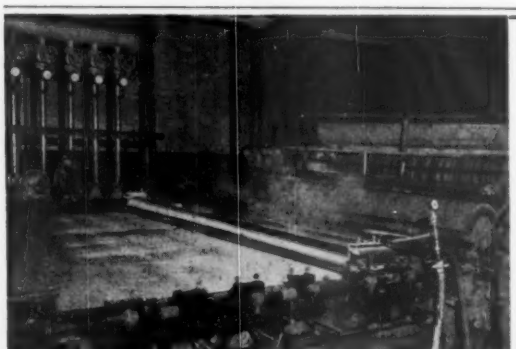

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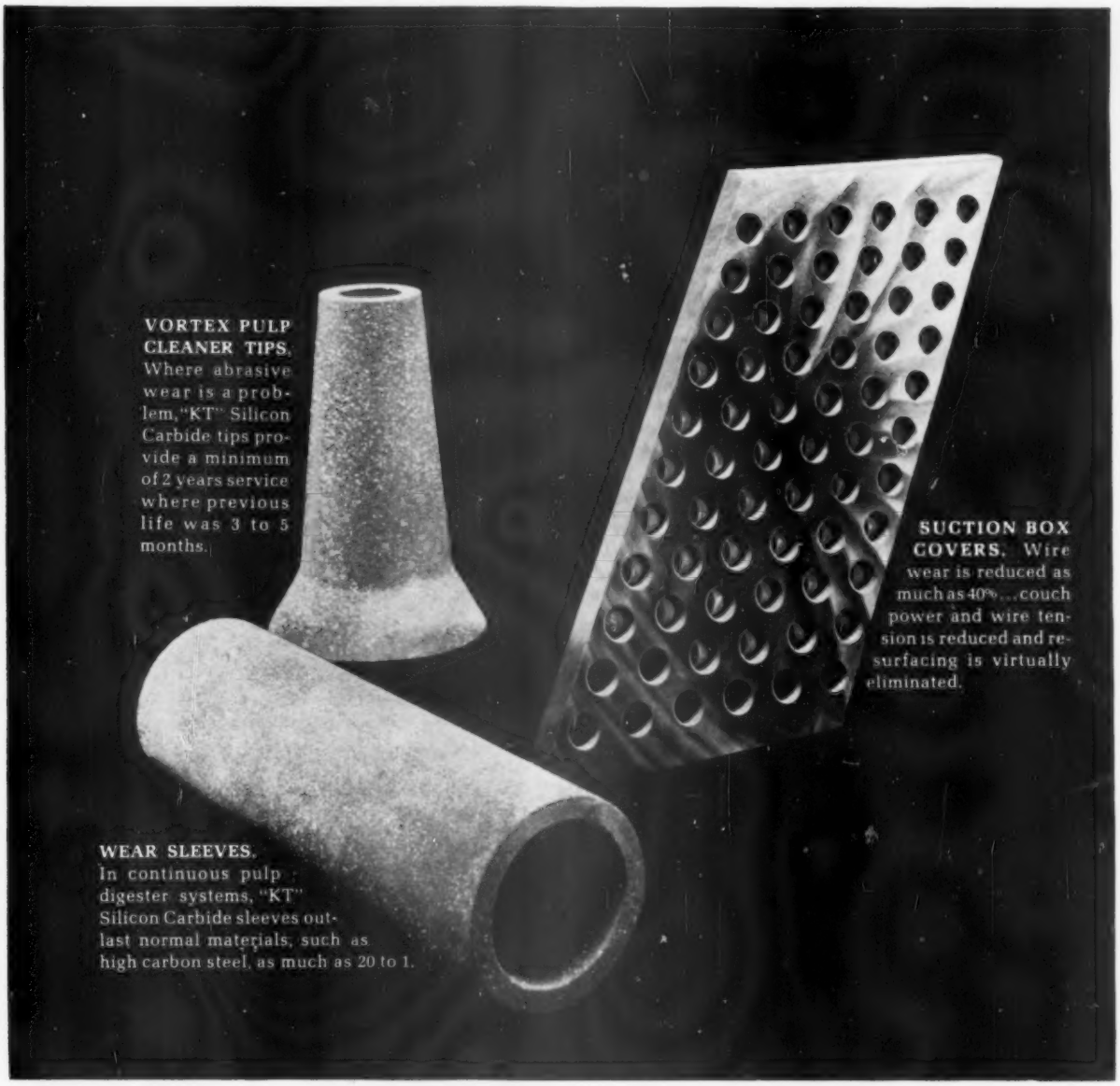
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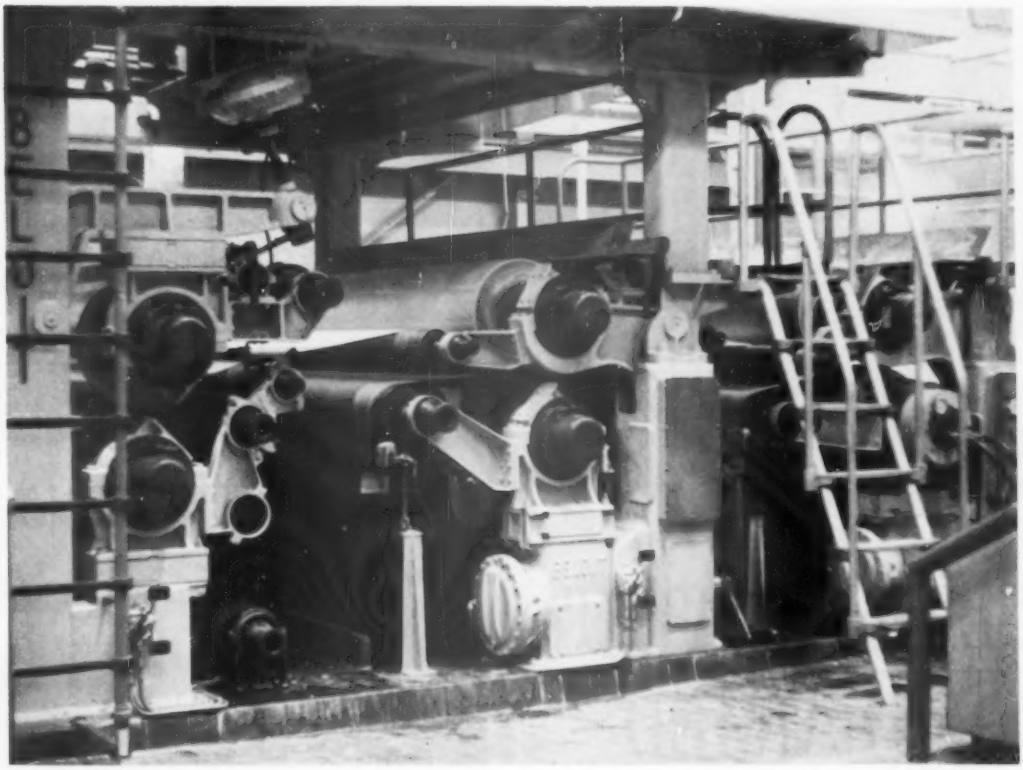

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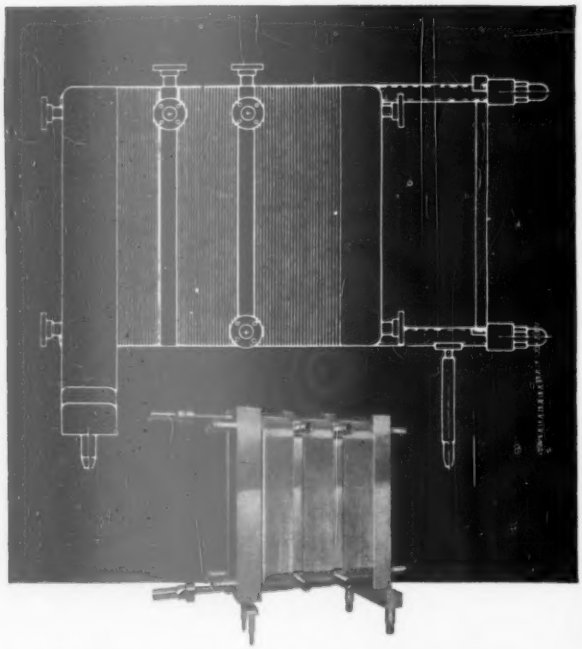

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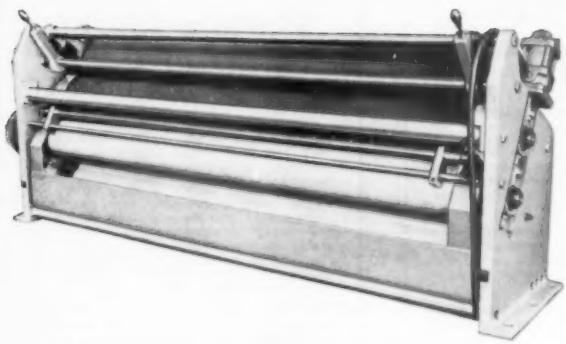

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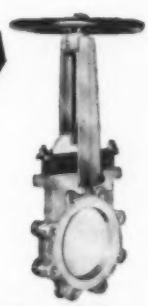

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The last word

Pollution Paradox

The pulp and paper industry and its pollution problem is comparable, much too often, to the whale after it is sighted by a whaler crew. If the whale rises to the surface, it will be harpooned. If it stays below, it drowns. Whether this industry talks about or submerges its problems, it seems doomed to lose.

In Washington state, 10 large pulp and paper companies have been ordered to install recovery plants or other abatement facilities which would cost each from nearly $10 million to in excess of $20 million. One sulfite mill, which already has minimized its pollution, estimates that in order to comply its expense would about equal all the money spent on the mill over some 25 years, including the cost of original construction and all additions.

The mills are appealing the orders on the grounds that, contrary to a state law creating the pollution control commission, there is still no definition of what constitutes pollution. When the mills are through spending this money, what assurance is there that the authorities will be satisfied? Mills presently ordered to put in recovery plants installed a deep water diffusion pipeline far out into Puget Sound about 10 years ago. This was hailed as a solution, and now, for some mills, the new orders say similar pipelines, will be satisfactory. But for mills which already have such a pipeline, the order is for recovery plants!

To return to the whale and his plight. If the pulp mills win a hearing, or must go to court and win the court decision, they still are losers. Even if they win their cases, being called on the carpet or forced into court places them behind the eight ball in the public eye.

Why is this so? Literally hundreds of cities are still dumping raw sewage into streams, without even screening; a fisherman whose boat drifts into areas of big oil refineries doesn't dare light a cigaret; food processors, chemical plants, metal works, cheese factories pollute.

But pulp mills generally are in the forests, which sportsmen and recreationists roam, and so come under their critical eye. Mill employes do not have as many votes as refinery labor. The foam from a mill outfall is a bright white, and other effluents are not so apparent.

In the area of its mills, Washington has a greater quantity of diffusionary water than any other state, according to pulp men. Be that as it may, it also happens to be a state where a high proportion of the population fish and boat. Unfortunately for the mills, this is true too in other states.

Pulp and paper mill employes in small towns, in forest surroundings, lead better healthier lives than those in many other industries. But, by the same token, the mills become main targets of anti-pollution campaigns. A case in point: the recent Columbia Broadcasting Company TV documentary which named pulp and paper alone, among all industries, as stream polluters.

We May Learn From Others

Keeping posted on what other industries do has paid off many times for the pulp and paper industry, in developing new processes and products. Maybe it is worth trying in the case of the pollution problem.

Here's how the chemical processing industries reacted to the new and more stringent federal pollution law enacted by Congress this year at the behest of President Kennedy.

The Manufacturing Chemists' Association, through its president, John E. Hull, was quoted in *Chemical Processing*, as praising the new federal law:

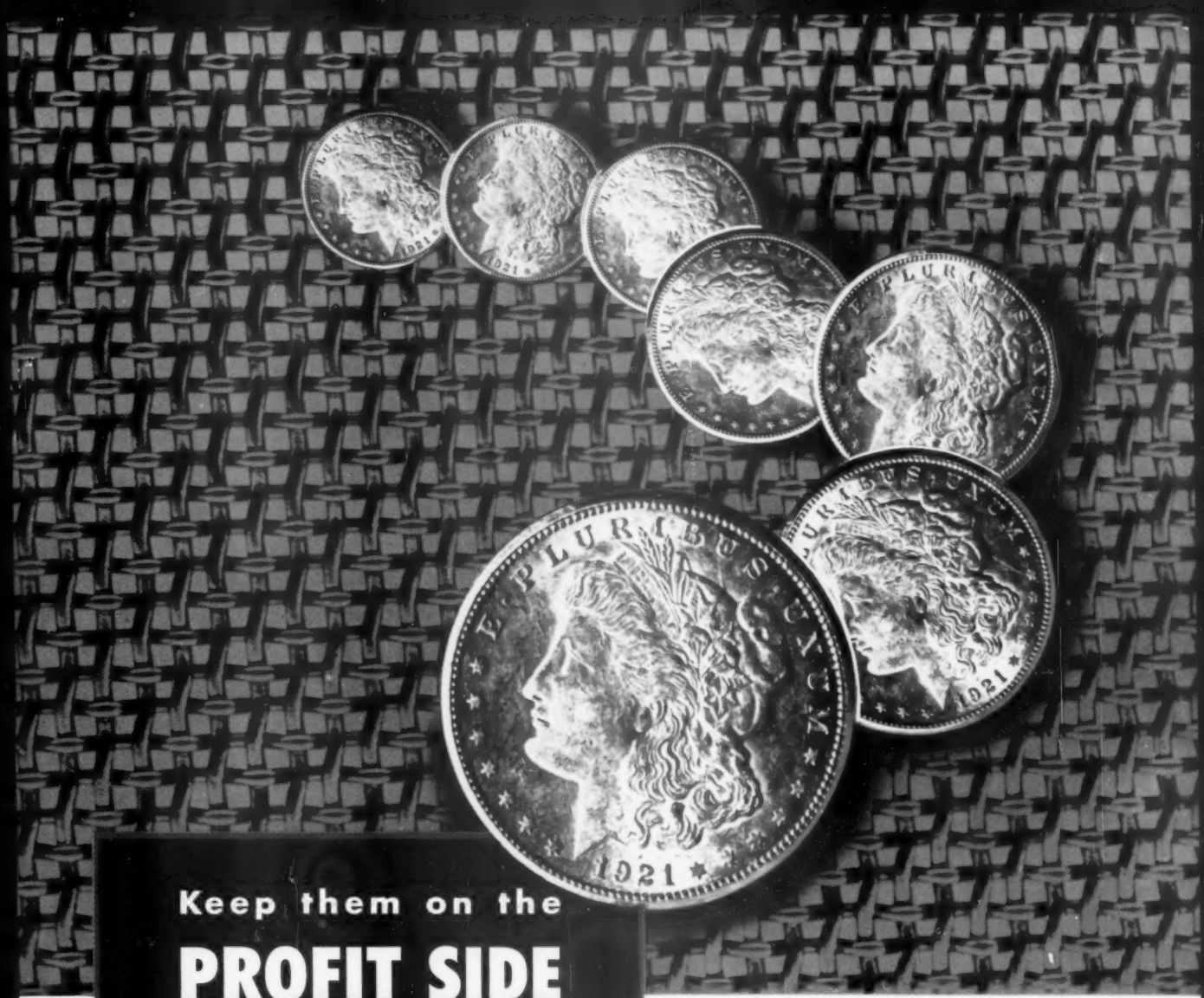
"The law recognizes that despite the excellent efforts of the various water pollution control centers throughout the country, there still remains a need for increased research.

"In aiding communities to construct adequate treatment facilities, the law now provides for two or more communities to act jointly to construct such facilities. It also recognizes the primacy of local responsibility in providing effective pollution control.

"The chemical industry is gratified that the new legislation supports state and interstate agency programs with which the industry has worked effectively in the past."

The law he praises was strongly opposed by the pulp and paper industry.

This is the kind of favorable publicity this industry needs, too. If the chemical processors get it, why can't pulp and paper?



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